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Contents

155 Pratolino WEBSTER SMITH

169 The Period House in the Nineteen-Twenties JONATHAN LANE

179 Letters from Louis H. Sullivan to R. M. Schindler Edited by ESTHER MC COY

185 Samuel Thomson and the Old Custom House LOUIS TORRES

191 American Notes
'A Return to Solid and Classical Principles', Arthur D. Gilman, 1859
GEORGE L. WRENN
Canvass White and Natural Cement, 1818–1834 HARLEY J. MC KEE

198 Letters to the Editor
Archives of the Supervising Architect, Treasury Department

199 Books
John Fitchen, *The Construction of Gothic Cathedrals*, reviewed by JONATHAN LANE
Peter Blake, *The Master Builders, Le Corbusier, Mies van der Rohe, Frank Lloyd Wright*, reviewed by THEODORE M. BROWN
A. Trevor Hodge, *The Woodwork of Greek Roofs*, reviewed by STEPHEN L. GLASS
H. Gerson and E. H. ter Kuile, *Art and Architecture in Belgium, 1600–1800*, reviewed by MARGARET DAMM
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Pratolino*

WEBSTER SMITH Cornell University

THE VILLA called Pratolino stood some six miles north of Florence, about a half mile to the east off the via Bolognese. The site is a gradual slope rising towards the north and overlooking the hilly landscape to the south towards Fiesole, over four miles away, whose cathedral tower provides on clear days the only mark of a town or city on the entire view. The Grand Duke Francesco I de' Medici, a reputed lover of solitude,[1] had acquired much of the property in September 1568.[2] It was a tract of farmland and woods that he wanted transformed into a place of rest and amusement. Work began in the following May and continued for some fifteen years, mainly on the designs of the architect, inventor, and engineer Bernardo Buontalenti. The progress of work is related through documents preserved in the Florentine State Archives.[3]

Little of Pratolino survives today, aside from the colossal Appennino of Giovanni Bologna (fig. 12). But much of it may be seen through descriptions and pictures dating from the late sixteenth through the eighteenth centuries.[4] One of the earliest descriptions is that of Michel de Montaigne,[5] who stopped there in 1580; one of the longest was written by a Florentine, Francesco de' Vieri, and published in Florence in 1586 under the title *Delle marauigliose opere di Pratolino.*[6] Among the pictures are a general plan by Bernardo Sgrilli (fig. 1) to accompany his *Descrizione . . . di Pratolino* (Florence, 1742), a lunette painted by 'Giusto' Utens in 1599 and showing the southern half of the complex (fig. 2),[7] and six views etched by Stefano della Bella perhaps about the middle of the seventeenth century (figs. 3, 4, 13, 16–18; later used by Sgrilli as additional illustrations for his *Descrizione*).

Sgrilli's plan shows an irregular enclosure oriented approximately north and south, measuring some 2,500 feet from end to end, and surrounded by land given over largely to cultivation. Woods fill much of the enclosure; fountains, ponds, grottoes, and paths are dispersed in seemingly casual fashion among them. Strict planning, however, partially informs the shape as a whole. The area is divided laterally about in half by a straight line directed approximately east and west, while a second, more prominent, axis extends from end to end.

The plan of the palace (labeled '1') lies near the midpoint of this north-south axis; it approximates the shape

*This article is based on part of a doctoral dissertation, *Studies on Buontalenti's Villas*, submitted to the Faculty of the Graduate School of Arts and Science of New York University in September 1958. It is a pleasure for me to acknowledge in particular the assistance of Dr. Richard Krautheimer during the preparation of that dissertation. I am especially grateful also to my wife, Molly Teasdale Smith, to Professor David R. Coffin of Princeton University, and, again, to Dr. Krautheimer, for reading and criticizing a draft of the present article.

George Specht, who is caretaker of the estate of Pratolino (now owned by His Royal Highness Prince Paul of Jugoslavia), has been kind enough to furnish me with several photographs (see fig. 12) and with information on the present state of the property.

Some of the material of this article was presented as a paper at the meeting of the Society of Architectural Historians in January 1960.

1. Bernardo Sgrilli, *Descrizione della regia villa, fontane, e fabbriche de Pratolino* (Florence, 1742), p. 6.

2. See note 24.

3. Several of the documents are cited in Vera Daddi Giovannozzi, 'La vita di Bernardo Buontalenti scritta da Gherardo Silvani', *Rivista d'arte* XIV (1932), 508 n. 4, and *idem*, 'Ricerche su Bernardo Buontalenti', *Rivista d'arte* XV (1933), 300 n. 1 (cf. notes 23, 25, 26). See also notes 23–42.

4. A partial listing of descriptive and pictorial sources on Pratolino is given in Luigi Dami, *Il giardino italiano* (Milan, 1924), p. 39. For a correlation of seven of the more important descriptions, see Christian Hülsen, 'Ein deutscher Architekt in Florenz (1600)', *Mitteilungen des kunsthistorischen Instituts in Florenz* II (1912), 152–175.

5. Michel de Montaigne, *Journal de voyage en Italie par la Suisse et l'Allemagne en 1580 et 1581*, (ed.) Charles Dédéyan (Paris, 1946), pp. 185–186.

6. De' Vieri (p. 22) acknowledges that he has received assistance from Buontalenti himself and his son Francesco in preparing the description, which, he says, concerns '. . . tutte le piu marauigliose opere di Pratolino . . . che io in un sol giorno, che l'hò vedute, ne hò potuto tenere à memoria; & . . . che in breuissimo tempo di un' hora l'Eccellente Architetto, & Ingegniere, Messer Bernardo Buontalenti, & Messer Francesco suo figliuolo m' hanno aiutato mettere in carta . . . .'

7. The painting is one of a series of fourteen lunettes of Medicean villas. Two identical versions of the series are in existence: one (formerly at the Villa Cafaggiolo) in the Museo Storico Topografico, Florence, and reproduced here, and the other (still in situ) at the Villa Ferdinanda, Artimino. An account book of 'la fabbrica della Villa d'Artimino' contains two notices of payments to 'mr giusto utens fiamingho pittore' for his paintings 'per la sala grand di Art.mo nelle lunette'. The entries are dated 4 September and 23 October 1599 (Florence, Archivio dello Stato, *Possessione, filza* 4437, fols. 79^r and 92^r).

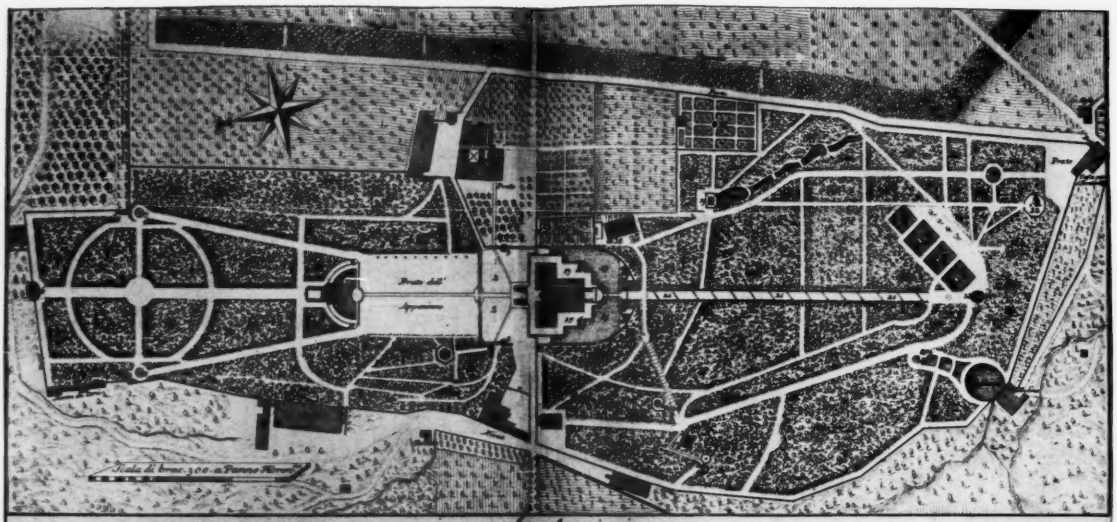

Fig. 1. Plan of Pratolino (from Sgrilli, *Descrizione*).

of a T, the stem running north and south. Either end of the main axis is marked by an oval shape representing a fountain-basin ('6' and '22'); the Fountain of Jove (so it is called on the accompanying legend) stands to the north, and the Basin of the Laundress to the south. The Laundress herself, sculptured by Valerio Cioli,[8] appears at the bottom, center, of Utens's painting: a figure of apparently colossal size, bending over, in an attitude appropriate for washing, and accompanied by a figure of a little boy engaged in another sort of cathartic process. Between the Laundress and the palace runs an avenue ('21') flanked on both sides, according to Sgrilli's legend, by many fountains. One of Stefano della Bella's etchings (fig. 3) shows it cutting through the evergreen woods and roofed over for its entire length by jets under which several people stroll along untouched by the wetness overhead.

A rectangular clearing, labeled 'Prato dell'Appennino', extends between the north front of the palace and a semicircular basin ('8'), a 'Great Basin', says the legend, '. . . [overlooked by] the gigantic Statue representing the mount Appennino.' An etching by Giuseppe Zocchi published in 1744 (fig. 6)[9] shows what the view was like from where the Appennino still stands. Part of the Great Basin occupies the foreground; the Prato is closed at its far end by the north façade of the palace and bordered on either side by clipped hedges and topiary niches containing statues; fir trees grow with no apparent restraint just outside the enclosure.

The Appennino itself appears in another etching by Stefano della Bella (fig. 13), not visible on every side, as it is today, but, as Francesco de' Vieri describes it, set against 'a great mountain', which itself 'one takes to be the Mount Appennino'.[10] The inside of the colossus, according to de' Vieri, is divided into 'rooms in which are painted all the mines and men who dig from them metals and stones.' The principal room, he says, contains an octagonal fountain embellished with various figures including eight bats and a snail of mother-of-pearl and a Thetis of sea shells.[11] The same fountain was drawn by the German architect Heinrich Schickhardt (fig. 19), who visited Pratolino in 1600.[12]

8. See Rafaello Borghini, *Il Riposo* (Florence, 1584), p. 600.

9. Giuseppe Zocchi, *Vedute delle ville e d'altri luoghi della Toscana* (Florence, 1744), pl. 34.

10. Francesco de' Vieri, *Delle marauigliose opere di Pratolino* (Florence, 1586), p. 27.

11. De' Vieri, *Delle marauigliose*, p. 27.

12. Schickhardt's notes and sketches are preserved in the Landesbibliothek, Stuttgart. See Hülsen, 'Ein deutscher Architekt in Florenz (1600)'.

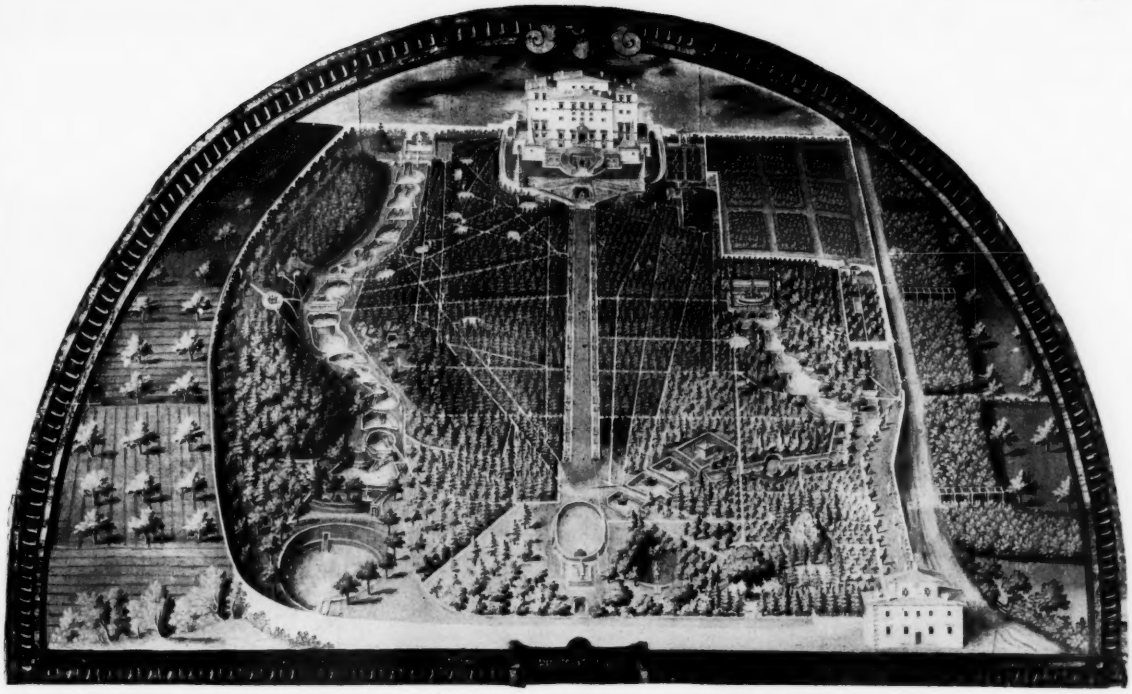

Fig. 2. View of Pratolino, by Utens, 1599. Florence, Museo Topografico (photo: Soprintendenze alle Gallerie di Firenze).

Aside from the Appennino, the most attractive surviving ornament of the grounds is a chapel (fig. 15) that stands nearby ('9' on Sgrilli's plan). It is hexagonal, 'eighty *braccia* in circumference',[13] with a hive-shaped dome, and surrounded by a twelve-columned portico.

Among many other curiosities there was at the south end of the grounds an oak tree with a rustic staircase winding around the trunk and a tree house and a fountain set among the branches ('32' on Sgrilli's plan; to the right of the Laundress in Utens's painting; and in an etching by della Bella: fig. 16). Near the oak stood a Mount Parnassus ('31'), with statues of the muses on the slopes and Pegasus at the summit; an hydraulic organ played inside. A Grotto of Cupid (which still stands today) was placed among the grounds towards the west ('25'; towards the upper left in Utens's painting). It is crowned by a cupola and encrusted with grotto stone. Stefano della Bella portrays it as almost lost among fir trees and approached by a path obstructed by surprising jets (fig. 17). Originally it sheltered a 'bronze Cupid, which, through ingenious artefice, sometimes turns around and squirts water through his torch at this and that. This grotto is all tricks, for those who enter therein unaware find themselves bathed, whether they sit or stand.'[14]

The considerable problem of water supply is mentioned by Montaigne and by the English traveler Fynes Moryson, a visitor of 1594. According to Montaigne, Francesco de' Medici 'would seem to have selected expressly an inconvenient site, sterile and mountainous, nay even without springs, in order that he might have that honor of going to fetch them five miles away . . . .'[15] '. . . we . . . came to Pratoline', says Moryson, 'the Dukes famous garden . . . the conduits whereof for water if a man well consider, he may justly say of the gardens of Italy, as Mounster saith of the Towns of Valesia, that their water costs them more than their wine . . . and there is a Cave under the earth leading three miles to the Fountaine of water, from whence by many pipes the waters are brought to serve the workes of these Gardens.'[16]

The men in charge of operating and maintaining these 'workes' are brought to the reader's attention by Sgrilli.

13. De' Vieri, *Delle marauigliose*, p. 30.

14. De' Vieri, *Delle marauigliose*, p. 53. For description of the Oak and the Parnassus, see p. 47.

15. Montaigne, *Journal de voyage*, p. 186.

16. *The Itinerary of Fynes Moryson*, (ed.) Glasgow University Press, 4 vols. (Glasgow, 1907), I, 327.

Fig. 3. View of Avenue of Fountains, by Stefano della Bella (from Sgrilli, *Descrizione*).

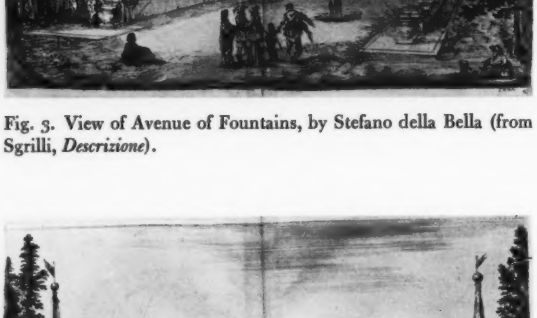

Fig. 4. View of southern approach to palace, by Stefano della Bella (from Sgrilli, *Descrizione*).

He speaks repeatedly of the 'Fontanieri' and their task of wetting strangers.[17]

The *fontanieri* were nowhere busier, and fantasies nowhere more abundant and obtrusive, than in the grottoes lodged in front of and inside the palace itself. One of these grottoes occurred underneath the double stairway '*a cordoni*' (Sgrilli: plan: '18') that led from the avenue of fountains ('21') up on to the terrace ('15') on which the palace stood. The entrance appears in della Bella's etching showing the southern approach to the palace (fig. 4). Just inside the opening is a fountain figure of the river god Mugnone, 'which gives water to all those fountains [in the park below]'. The interior, as represented, again, by della Bella (fig. 18), is an oblong room at one end of which presides an hydraulic automaton representing Fame flapping her wings and sounding a golden trumpet (fig. 18, to the right). She keeps company with a peasant who holds out a cup into which a thirsty dragon dips its head to drink. At the opposite end, the god Pan raises his pipes, plays, moves his head, rests, and sits down. 'Syrinx is there too, who changes into a reed . . . .'[18] Smooth and square flagstones cover the floor; cornices and ornamented bands define the walls and vaults, which are coated mostly with stalactites and grotto stone. Illusionistic glimpses of landscape complete the heterogeneous ensemble.

Six more grottoes occupied the southern portion of the ground floor of the palace, as shown in a plan of the ground floor drawn by Sgrilli (fig. 11). They were accessible from outside through a stalactitic entrance in the south façade, which appears in Utens's view. Perhaps the most remarkable of them was the Grotto of Galatea ('1' in fig. 11). De' Vieri describes it as 'designed in such manner that it seems the said grotto is about to cave in . . . .'

> It is all of mother-of-pearl [he adds], with a sea of water with various reefs covered with corals and sea shells. Among the said reefs appears a Triton sounding a marine snail shell, and at this moment a reef is opened, from which issues Galatea herself on a golden shell drawn by two dolphins that spout water through their mouths; she is accompanied on the shore of the sea by two other nymphs who emerge from two other places . . . and throw out water from some coral branches they hold in their hands.[19]

Speaking of the adjacent chamber, the Grotto of the Deluge ('g'), Moryson says, 'with the turning of a Cocke, the unseene waters cause a noise like thunder, and presently a great shower of raine fals.'[20] 'By a single movement', says Montaigne, 'the whole grotto is filled with water, and all the seats squirt water up to your bottom; and, as you fly from the grotto and run up the palace stairs [either arm of the curving double stairway that leads up to the entrance to the *piano nobile*], anyone who wishes to indulge in this kind of sport may let loose from every two steps of that stairway a thousand jets of water, which will bathe you until you reach the upper part of the house.'[21]

The *piano nobile*, second, and third stories were about identical in plan, according to three more plans by Sgrilli (fig. 12). On each floor a 'salone' stood to the north flanked on either side by a suite of five smaller rooms, while the narrower, southern part contained a 'salotto' with two smaller rooms on either side. From an antechamber ('e' in fig. 12) on the *piano nobile* access was given to the grottoes below by a 'trapdoor, through which one passes and descends by a little stairway to the Grotto of the deluge'. Another room ('d') had an hydraulic organ. A dedicatory inscription dated 1575 is said to have occurred on one of the ceilings: 'Francesco de' Medici, Sec-

17. Sgrilli, *Descrizione*, *passim*.

18. De' Vieri, *Della marauigliose*, pp. 43–44.
19. De' Vieri, *Della marauigliose*, p. 35.
20. *The Itinerary of Fynes Moryson*, I, 329.
21. Montaigne, *Journal de voyage*, p. 186.

ond Grand Duke of Etruria, ornamented these edifices with fountains, ponds, and shaded walks, and he consecrated them to the merriment and the recreation of himself and his friends. A.D. MDLXXV.'[22]

In 1575 the construction of the palace was nearing completion. 'I have been considering', says a letter dated 5 March, 'together with Bernardo Buontalenti, Architect, the monies that will be necessary to bring to completion with all speed possible the Building of the palace of Pratolino . . . .'[23] The letter was sent to the Grand Duke by Benedetto Uguccioni, who had been the owner of a large part of the property and was now the superintendent of the work in progress.[24]

The earliest recorded payment known to the present writer is dated 31 May 1569.[25] By the following 15 September the construction of the palace was under way, although Buontalenti, according to Uguccioni, had not yet decided on the designs for the main entrances.[26] His indecision may be reflected in two preparatory drawings (figs. 8, 9); apparently they represent alternative proposals for a single doorway of the palace.[27] Both display approximately the same pattern of stonework, which resembles the masonry of the north portal to the *piano nobile* as portrayed in another of Sgrilli's illustrations (fig. 7), and, to a lesser degree, that of the south portal as portrayed by Utens. The difference between the two drawings is mainly in the forms of cornice and ornament. Closer to the final designs of both portals (as they appear, however unclearly, in the renderings by Sgrilli and Utens) is the drawing (fig. 8) that suggests that the cornice be concave in the middle in order to accommodate a curving and swelling coat of arms, which is accompanied by a piece of scrollwork flaring out over the cornice on both sides. The other drawing (fig. 9) shows a similar piece of scrollwork, but a cornice that is perfectly straight and surmounted rather than interrupted by the coat of arms (barely sketched at the top of the sheet).

A third drawing (fig. 5) deals not with the palace proper but with the entrance to the Grotto of Pan and Fame, beneath the double stairway *a cordoni* in the south-

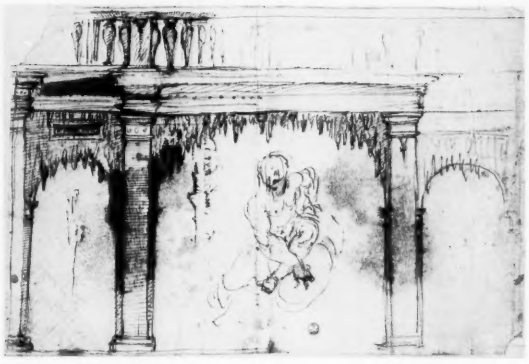

Fig. 5. Study for entrance to grotto, by Buontalenti. Florence, Uffizi, Gabinetto dei disegni e della stampe, *dis. arch.* 2323 (photo: Brogi).

Fig. 6. North front of palace, Pratolino (from Zocchi, *Vedute delle ville e d'altri luoghi della Toscana*).

22. M. L'Abbé Richard, *Description historique et critique de l'Italie* (Paris, 1769), III, 121.

23. Florence, Archivio dello Stato, *Negozi del Provveditore*, *filza* 1464, no. 159: 'Io sono ito ueggendo insieme con mro Berdo Buontalenti Architetto per li danari occorrerieno per possere con ogni maggior prestezza possible tirare a fine la Fab.ca del palazzo di Pratolino si come V.A.S. ne ha comandato . . . .' This quotation is also given in Giovannozzi, 'La vita di Bernardo Buontalenti scritta da Gherardo Silvani', p. 508 n. 4.

24. *Possessione*, *filza* 4117 ('Campione di Beni stabili del Sermo don franco Medici, Gran' Duca di Toscana'), fol. 17r: 'Beni sotto la fattoria di Pratolino . . . Li sudetti tre poderi et due pezzi di terre li compero S. Altza da benedetto di buonaccorto uguccioni per [scudi tremila] di m[onet]a a gabella di S. A. per contto rogato S Giovanni Contini sotto di 15 7bre 1568.' The same document also mentions other property bought in subsequent years (1569–1578). Cf. Baldinucci, *Notizie dei professori del disegno* . . ., (ed.) F. Ranalli, 5 vols. (Florence, 1845–1847), II, 496: 'Aveva l'anno 1569 [sic] il principe Francesco comperato da Benedetto di Buonaccorso Uguccioni un suo luogo detto Pratolino . . . ed altri molti luoghi vicini. . . .'

25. *Magistrato dei Nove Conservatori del dominio e della giurisdizione fiorentina*, *filza* 3705: an account book 'per la fabca di pratolino' with entries dating from 31 May 1569 through June 1571 (no specific jobs are mentioned). A letter of 8(?) September 1571 maintains that work began on 28 May 1569 (*Capitani di Parte*, *Negozi del Provveditore*, *filza* 1464, no. 49: copy of letter from Uguccioni to Francesco): '. . . si troua, essere speso da 28. di maggio 69, che si principio, sino a x 7bre 1571 che io nebbi la Cura fiorini 9790. 6. 17. 9. . . .' Cf. Giovannozzi, 'La vita di Bernardo Buontalenti . . .', p. 508 n. 4.

26. *Capitani di Parte*, *Negozi del Provveditore*, *filza* 1463 (no numbering of documents): Uguccioni to Francesco, 15 September 1569: '. . . mro Bernardo Buontalenti ma dati i capi delle prete ui occorriono eccietto che le porte principale allentrar' nel palazzo e non mela resolute nel modo anno aessere. . . .' Also quoted in Giovannozzi, 'Ricerche su Bernardo Buontalenti', p. 300 n. 1.

27. These drawings are identified and discussed in Giovannozzi, 'Ricerche su Bernardo Buontalenti', pp. 300–302.

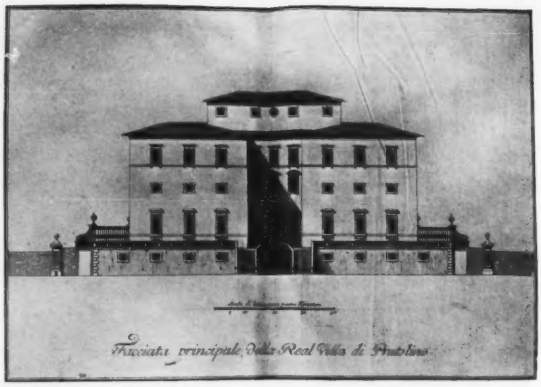

Fig. 7. North front of palace, Pratolino (from Sgrilli, *Descrizione*).

ern approach to the building.[28] Again, the drawing is tentative. Instead of the cavelike hole that was finally decided on and is shown by Utens and della Bella (fig. 4), the drawing indicates a tripartite opening partitioned by piers faced with Tuscan-Doric half columns and surmounted by a heavy entablature. Instead of the allover application of grotto stone and stalactites seen in the painting and in the etching, the drawing proposes their confinement to the arches between the piers. Only the form of the statue just inside, the Mugnone, would seem to have been finally determined at the time the drawing was made, for it shows the figure in the same pose as the finished statue assumes in the topographical renderings. Perhaps the drawing dates from about 1575, when the palace was

28. This drawing is also reproduced and identified in Adolfo Venturi, *Storia dell' arte italiana*, 11 vols. (Milan, 1901–1939), XI, part 2, 463.

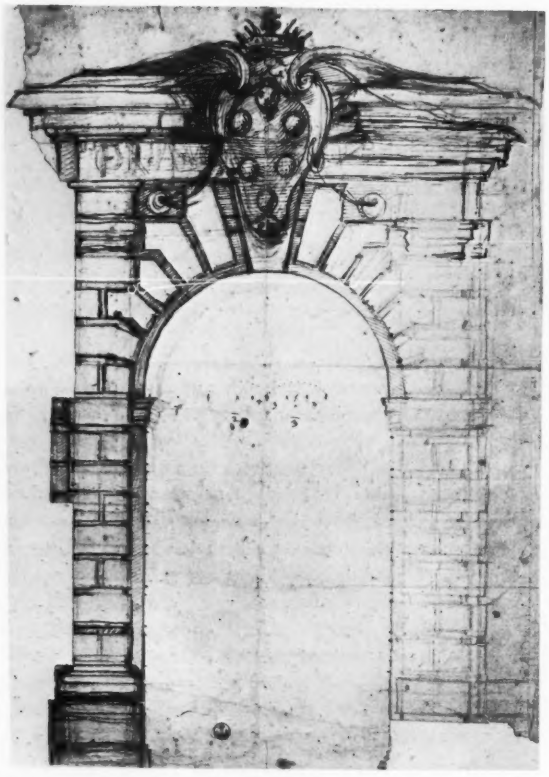

Fig. 8. Study for doorway, by Buontalenti. Florence, Uffizi, Gabinetto dei disegni e delle stampe, *dis. arch.* 2322 (photo: Soprintendenze alle Gallerie di Firenze).

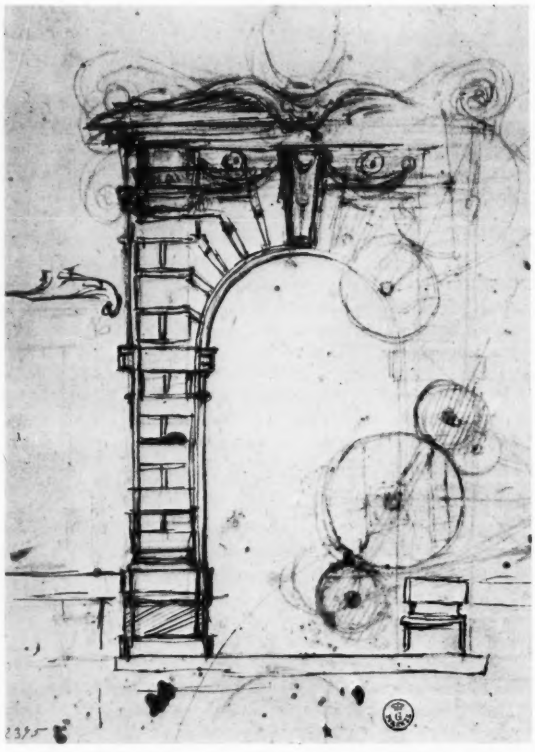

Fig. 9. Study for a doorway, by Buontalenti. Florence, Uffizi, Gabinetto dei disegni e delle stampe, *dis. arch.* 2375 (photo: Soprintendenze alle Gallerie di Firenze).

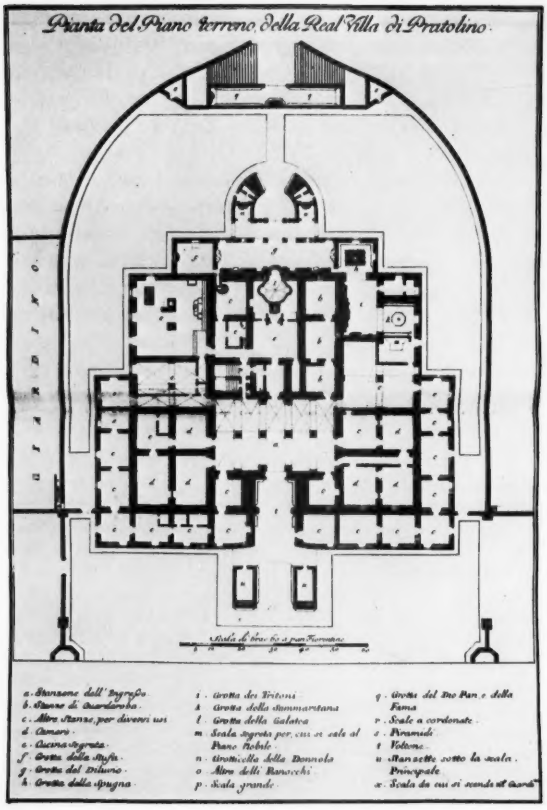

Fig. 10. Plan for *piano terreno* of palace (from Sgrilli, *Descrizione*).

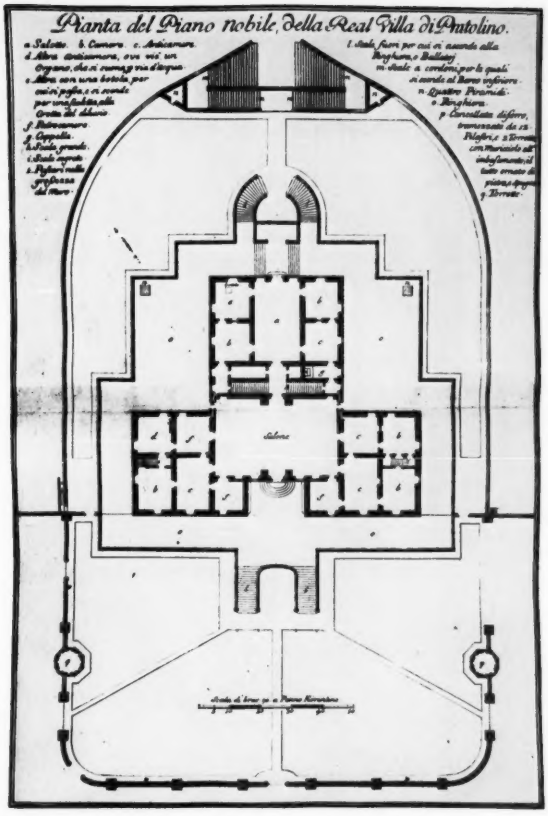

Fig. 11. Plan of *piano nobile* of palace (from Sgrilli, *Descrizione*).

essentially finished, and the work on its approaches and on the grounds may have been already in progress but not necessarily planned out to the last detail.

A letter of 31 October 1575 mentions the construction of stairways to the main entrances of the palace. The same letter also speaks of 'pools' ('tonfani'); although mentioned together with the palace, they may be identified with the irregularly shaped and arranged ponds in the southern portion of the grounds ('20' on Sgrilli's general plan, and appearing to the left and to the right in Utens's view, and called 'Tonfani' on pp. 51 and 52 of de' Vieri). In the following year, 1576, the building of 'the wall of [around?] the park of Pratolino' had been started.[29]

In 1577 the wall was plastered. More pools were made and filled with water, and so were three fish ponds ('vivai'), which may be identical with the three rectangular ponds grouped together towards the lower part of the southern park and designated on Sgrilli's general plan as '29. Tre gran Vivaj'. The caretaker's house ('La casa del fattore') was finished: perhaps the house in the southeast corner of the grounds, seen to the lower right in Utens's painting and called 'Casa per il Fontaniere' by Sgrilli. The curving walls bounding the terrace ('15') beneath the palace were still under construction, as was the double stairway *a cordoni*, which led from the terrace down into the southern park. In November, the Mugnone was ready to be put 'under the stairs [*a cordoni*] at the head of the . . . avenue.' The avenue itself ('21') may have been nearly finished at

29. *Capitani di Parte, Negozi del Provveditore, filza* 1464, no. 194: Uguccioni to Francesco, 31 October 1575: '. . . si e fornito dispendere lj [scudi] *1500* che sidomandorno a' V. A. S. alpassato per 5/0/sej settimane a' [scudi] 250. la [setti]mana per possere tirare in nanzi alhora itonfanj, Et il restante della fabbrica dipratolino, Al che lej ne rispose che il depositario supplissi a tal bisogno, Et per possere seguitare auendo forniti itonfanj, lescale difuora delle porte diesso palazzo. . . .'

Idem, no. 226: Uguccioni to Francesco, 31 March 1576: 'Per possere seguitare il muro del varco di Pratolino e scala, e tutti altri lauorj per la piu presta fine, a questo buon tempo, se bene V.A.S. a comandato che sispenda quanto ne occorre per tale effetto. . . .'

Fig. 12. The Appennino, Pratolino, by Giovanni Bologna (photo: courtesy George Specht).

Fig. 13. The Appennino, view by Stefano della Bella (from Sgrilli, *Descrizione*).

this time.[30] Work progressed also at its lower end, 'at the basin of the Laundress'; and a 'Fonte di calcciuoli', which stood nearby ('23'), was now almost if not entirely completed.[31] Laurels and beeches were planted. Paths were smoothed over. 'The wall of the garden . . . [was] finished' (the secret garden, '34', next to the palace?).[32]

By 1578, if not somewhat earlier, work had started in the northern half of the complex, referred to in documents as the new park ('barcho nuovo'), perhaps in order to distinguish it from the more nearly completed layout to the south, called the 'barcho vecchio' by 1579 and possibly earlier. By 21 October 1578, 'The park is finished up to the stables . . .', and the stables themselves, lying along the western edge of this park ('12'), were also under construction at this time.[33]

30. *Cap. di Parte, Negozi del Prov., filza* 1466, no. 279: Uguccioni to Francesco (copy), 16 April 1577: on the need for funds for the completion of 'la casa del fattore, ed intonicare il muro del barco seguitando di apianarui le viottole, e muri a secco e farui i tonfani e altro, Il muro intorno al prato [terrace] del palazzo et le scale dinanzi e di dietro. . . .'

Idem, no. 248: a lengthy statement without address or signature dated 22 November 1577 and entitled 'Nota di Lauorj che si fanno in pratolino e a che Termini sono questo di.' Among the many items cited are the following: (1) the 'new pools' ('I tonfanj nuouj son' tuttj pienj a fanno un bellissimo uedere laqua'); (2) the three fish ponds ('Viuaj son finitj e pienj 2. elaltro mancha circha 8 staia fra dua/o 3 di sara pieno'); (3) the caretaker's house ('Casa del fattore e finita e ne tornato luj colle brighate e condottouj laqua e doccie'); (4) stone 'benches' along the edges of the terrace beneath the palace, the stairway *a cordoni*, grottoes underneath it, and the Mugnone. ('Le panche di Pietra che fanno muricciolo al' prato apie de Coridorj e dalle scale tonde sono tutte murate[.] La scala in testa alla stradone di uerso firenze apie di detto prato e fatto tutte le uolte delle grotte e quella sop.ª alla figura di pietra [the Mugnone] quale uie ritta esaranno fornite in 10/o/12 giorni . . . Messo la figura in capo allo stradone al pilo doue anno astare sotto le uolte delle scale in testa a detto stradone.')

31. *Cap. di Parte, Negozi del Prov., filza* 1466, no. 248: 'Lauorasj al Viuaio della Lauandaia'; 'Fonte di calcciuoli e fornita e muratorij balustrj cimase panche e fattouj il Condotto e tutto altro'. The latter fountain is mentioned briefly by Moryson, *Itinerary of Fynes Moryson*, I, 330: '. . . vulgarly [called] Caccioli, [it] containes vessels to keep water cold', and is described by Sgrilli as a little grotto that shelters a cold spring whose water issues through a flask in the hand of a little bronze satyr (*Descrizione . . .*, p. 23). The figure of the satyr is attributed to Giovanni Bologna and preserved in the Bargello; see Bertha Wiles, *The Fountains of the Florentine Sculptors and Their Followers from Donatello to Bernini* (Cambridge, Mass., 1933), fig. 151 and pp. 77, 128.

32. The laurels, beeches, and garden wall are, again, mentioned in the document already quoted from in notes 30 and 31 ('Posto gli Allorj a tonfanj nuouj e per il barcho. . . . I faggi sono posti. . . . Il muro del giardino e fornito . . . .'). The smoothing over of paths ('apianarui le viottole') is one of a number of jobs cited together in the first of the two documents quoted from in note 30.

33. *Cap. di Parte, Negozi del Prov., filza* 1465, no. 281: Uguccioni to Francesco, 21 October 1578: 'E fornito il varco fino alle stalle e se la pioggia non avessi interrotto saria piu innazi . . . .'

Idem, filza 1468 (no numbering of documents): Uguccioni to Francesco, 23 September 1584, on behalf of one 'Zanobj maestrinj

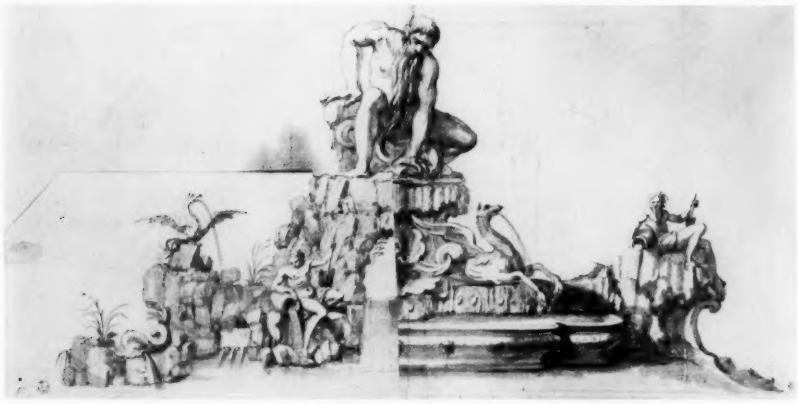

Fig. 14. Unexecuted projects for the setting for the Appennino. Florence, Uffizi, Gabinetto dei disegni e delle stampe, Coll. Santarelli 5117 (photo: Soprintendenze alle Gallerie di Firenze).

In November 1579, weather permitting, the roofing of the stables was to be finished, and laurels were to be planted in the 'Labyrinth' described in de' Vieri, p. 26, as 'full of laurels' and located within the circle drawn on Sgrilli's plan in the area between the Appennino and the Fountain of Jove. Work progressed on the semicircular pond ('8') at the north end of the Prato dell'Appennino.[34] The building of the Appennino itself, together with its mountainous setting, was perhaps already planned in detail if not started.[35]

A drawing of uncertain authorship (fig. 14) deals tentatively with this most conspicuous ornament of the villa. This drawing shows the colossus in the same posture it assumes today, but presents two alternative schemes for the base, neither one of which was carried out. The first of these schemes is visible (in our photograph) only on the right; on the left it is covered up by a smaller, attached sheet, which displays the second scheme. Both suggest something like a rocky pile to support the Appennino at the top together with subsidiary figures of river gods, dolphins, and hybrid monsters below and to either side. The second scheme (to the left) makes the subsidiary figures less prominent and the setting more decidedly rustic; this scheme is closer to the final form as it appears in della Bella's etching (fig. 13), where river gods, dolphins, and hybrids are left out entirely, and where a consistently rustic look informs not only the base but also much of the Appennino itself.

The etching also shows the feigned mountain cavern that once framed the figure, while the drawing would seem to propose, however faintly, an architectonic background —an archway rather than a cave. Again, as with the entrance to the Grotto of Pan and Fame, the final scheme took on a wilder look than that of the surviving preparatory drawing. This drawing could date from as late as 1579, when the Prato dell'Appennino and the semicircular pond were perhaps essentially finished but still wanting the focus that the Appennino would provide a year or so later.

The year 1579, incidentally, was that of Francesco's official wedding with Bianca Cappello. The poet Raffaello Gualterotti wrote an account of the ceremonies together with four poems, 'Vaghezze sopra Pratolino', in praise of

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fornaciaio di V. A. S. in Pratolino', that he be paid for work done in 1578 on the stalls and the new park ('. . . 166 migliaia di Lavoro quadro in c.ca che fecie lanno 1578 et servij per la muraglia delle stalle, et nuovo barcho . . . .').

34. *Cap. di Parte, Negozi del Prov., filza* 1466, no. 16: Uguccioni to Francesco, 18 November 1579:

'. . . a pratolino si attende a fornire di mettere il tetto delle stalle se il tempo lo concede tre o quattro giorni tutto sara fornito, e quando piove se lauora drento, a' fondamenti delle mangiatoie e altro . . . .

'Il Casino giardiniere attende apporre li allori nell' abberinto . . ., hollo auuertito che se faccia, ma quando si puo respett' al tempo tanto piouoso . . . .

'Al uiuaio grande intest' al' prato si lauorera come il tempo lo concede, intanto si fa condurre le pietre.'

35. 'Il siluoso Apennin' is mentioned already in a publication of 1579: Gualterotti, *Vaghezze sopra Pratolino*, p. 9 (for full bibliographical citation see note 36). The earliest notice of the statue that I know in documents, however, is dated 26 March 1580, and this notice concerns not the statue proper, but rather the construction of 'the vault where the Appennino is to go' ('. . . si lauora per farui lauolta doue a ire lappennino . . . .'—*Cap. di Parte, Negozi del Prov., filza* 1466, no. 155; see note 38); this 'vault' would seem to have been the underlying structure of the cavelike niche that partially shelters the figure as it appears in della Bella's etching (fig. 13).

Fig. 15. Chapel, Pratolino (photo: author).

Fig. 16. Fountain of the Oak, view by Stefano della Bella (from Sgrilli, *Descrizione*).

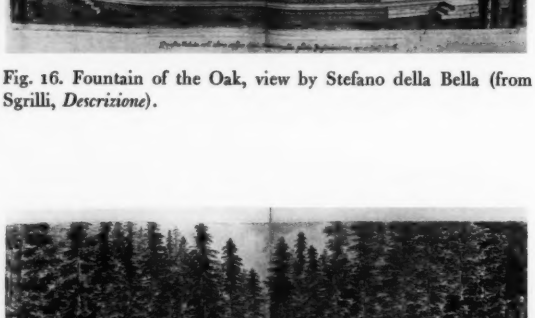

Fig. 17. Grotto of Cupid, view by Stefano della Bella (from Sgrilli, *Descrizione*).

their new country place.[36] The poems cite in rhetorical fashion some general impressions that the poet may have shared with others who saw the villa at this time. 'Clear fountains and shady woods inhabit its gracious land. . . . Its every grace presents Art and Nature together in competition. . . .'[37] Although not yet finished, the place may have been already altogether suitable as a retreat for the Grand Duke and his new Duchess.

The Chapel ('9'; fig. 15), 'which is being made amongst the firs', was almost finished by October 1580. The building of the Appennino, nearby, had probably already started by this time.[38] In November, Montaigne stopped 'to see a palace that the Duke of Florence built here twelve years ago, where he exercises all his natural five senses in embellishing it' and where 'they are now erecting the body of a giant which is three cubits wide at the opening of an eye, the rest being in the same proportion, from which will flow a spring in great abundance.'[39] Other attractions he describes as though they were finished. The grottoes in the ground story of the palace, for example, were then in full working order, presumably to the satisfaction of all five of the Grand Duke's natural senses.

A letter of the following year mentions the 'job of making the low walls ('muricciuolj') that have to go around the stairway of the oak of Pratolino'; they may be identified with the polygonal low wall that surrounds the tree as it appears in della Bella's etching (fig. 18). Another letter, of 6 January 1582, speaks of 'a model made for the stairway of the oak of Pratolino'. By 2 July 1583, the stairway itself 'was already finished seven months ago'.[40]

36. Raffaello Gualterotti, *Feste nelle nozze del Serenissimo Don Francesco Medici Gran Duca di Toscana; et della Sereniss. sua Consorte la Sig. Bianca Cappello*; and *idem*, *Vaghezze sopra Pratolino* [both works published in a single volume and also separately] (Florence, 1579).

37. Gualterotti, *Vaghezze*, pp. 4, 10: 'Suo gratioso lido | Habitan chiare fonti, e selve ombrose. . . . Qui l'Arte, e la Natura | Insieme à gara ogni sua gratia porge . . . .'

38. *Magistrato dei Nove Conservatori del domino e della giurisdizione fiorentina, filza* 3701: account book, with notices of 'la chappella che si fa tra li abeti dinanzi al palazzo' (*passim*) and of 'modello dela chiesa di pratolino . . . sichondo a disegniato mr Ber.do buontalentj' (fol. 98v).

Cap. di Parte, Negozi del Prov., filza 1466, no. 155: Uguccioni to Francesco, 26 March 1580, on the stables, the chapel, the setting for the Appennino, etc.: 'In Pratolino si attende per lafine dellauoro delle stalle; e alla Cappella sono murati e fondamenti fino al piano della terra e nel resto si attendera quanto da m.ro Bernardo ne sara ordinato; et il medesimo amurare le pietre al uiuaio doue si lauora per farui lauolta doue a ire lappennino. . . .'

Idem, no. 187: statement sent by Jacopo Dani (?) to Francesco on 3 October 1580, on progress of work as of 30 September, and including a notice of the chapel: 'Dice il mazzantino capom.ro che haura fornito aperfezione detta Cappella per tutto il mese dottobre prossimo auenire . . . .'

39. Montaigne, *Journal de voyage*, pp. 185, 187.

40. *Cap. di Parte, Negozi del Prov., filza* 1467 (no numbering of documents): Uguccioni to Francesco, 13 May 1581 ('. . . chottomo a

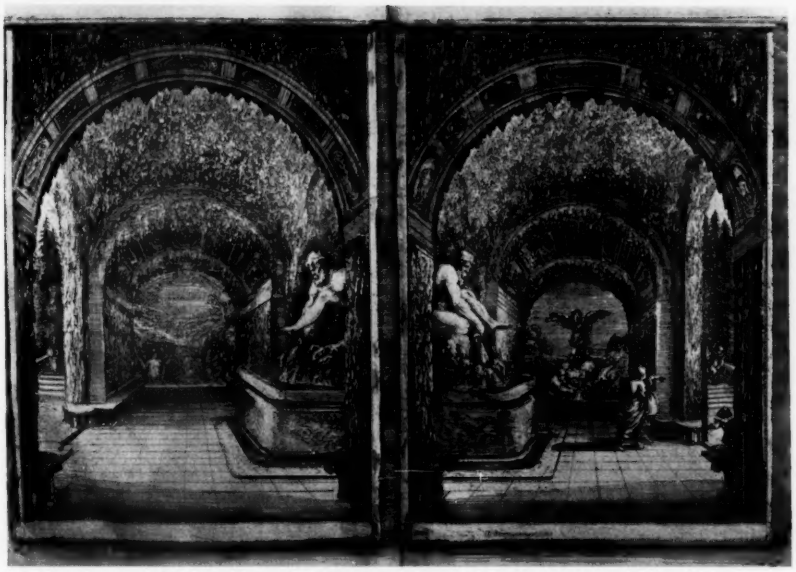

Fig. 18. Two views of the Grotto of Pan and Fame, by Stefano della Bella (from Sgrilli, *Descrizione*).

More stables were under construction in 1584–1585.[41] Among the petitions of the year 1586 was that of Giovanni Batista di Giovanpaolo Contini, 'temperatore' of the organs in Florence Cathedral, who asked to be paid for having built the organ for the Mount Parnassus at an unspecified time in the past. Another request came from one Tomaso di Batista di Bartolomeo and some stonecutters, who wanted to be paid for some work performed 'about three years ago' (ca. 1583) by order of Jacopo Ligozzi, the painter, 'in the Appennino of Pratolino'.[42]

The documents of 1586–1587 (the year of Francesco's death) say nothing, to the present writer's knowledge, of new constructions. It was perhaps to celebrate the completion of the villa that Francesco de' Vieri published his *Delle marauigliose opere di Pratolino* in 1586.

Its praises were literally sung in another work published in the same year: a composition entitled 'Li Pratolini', for five voices, by Giovampier Manenti.[43] This, together with de' Vieri's work, was one of a number of pieces composed at this time to honor the Grand Duke, the Duchess, and their new summer residence. Manenti's dedication, to Bianca Cappello, alludes to 'others' who had already devoted works in poetry 'to the same Pratolino'.[44] Torquato Tasso himself wrote three madrigals on the subject, also

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fare i muricciuolj che anno a ire intorno alla schala della quercia di pratolino. . . .') and 6 January 1582 ('. . . un modello fatto per la schala della quercia di prat.^no . . . .'); *idem*, *filza* 1468 (no numbering of documents): 'Brando seruitor' di V. A. S.' to Francesco, 2 July 1583, to request payment for having made 'la scala della quercia in pratolino' ('. . . prego V. A. S. che si degni per sua benignita farmi spedire . . . per che gia sette mesi fa fu finito detto lauoro . . .').

41. *Cap. di Parte, Negozi del Prov.*, *filza* 1468 (no numbering of documents): Uguccioni to Francesco, 25 November 1584: '. . . si e fatto chondurre i sassj, e altre appartenenze ordinato per le stalle, che domanj piacendo a Dio ui si mettera mano, et m.° Bernardo Buontalenti architetto di V. A. S., proponendo io che si facessj pilastrj chome alle stalle delosteria per mancho spesa et piu breuita per reggere le uolte, egli dicie che uorebbe si togliessj colonne di Pietra in cambio di Pilastrj muratj come le colonne delle stalle di s.^to Marcho . . . .' The answer to this question, written by another hand, is appended: 'S. A. uuoli che si facci pilastri, et non colonne.'

Idem, *filza* 1469 (no numbering of documents): Uguccioni to Francesco, 31 March 1585 ('. . . si ua seguitando per la fine delle volte delle stalle di Pratolino. . . . Resta ci la stalle per i muli. . . .').

42. *Ibid.*: petition of 19 April 1586, signed by Giovanni Batista di Giovanpaolo Contini ('Gio. ba. continj temperatore degli organj del duomo . . . a fatto un organo in pratolino Il quale vale meglio di [scudi] 200 . . . .'). *Ibid.*: Uguccioni to Francesco, 16 March 1586 ('Tomaso di batista di Bartolomeo e . . . [?] scarpellini espongono a V. A. S. che circa a' 3 annj sono feciono piu pietre nel apenino di pratolino per [lire] 96 in c.^ca per comissione di mr Jacapo ligozzo suo pittore . . . .').

43. I have not seen or heard this composition. It is cited in *Le rime di Torquato Tasso*, (ed.) Angelo Solerti, 4 vols. (Bologna, 1898–1902), IV, 356 n., as follows: 'Li Pratolini | di Giovampier Manenti, Bolognese | Musico del Serenissimo Gran | Duca di Toscana | A Cinque Voci | Nuouamente composta et data in luce | In Venetia appresso Angelo Gardano | MDLXXXVI.'

44. *Le rime di Torquato Tasso*, IV, 356: 'Havendo il signor Palla Rucellai, non mano degli altri, allo stesso Pratolino consagrato già i suoi Madrigali, quasi mi sarebbe parso grandemente mancare al debito et osservatia mia verso V. A. et verso quel luogo, se sopra essi non havessi . . . composta la Musica. . . .'

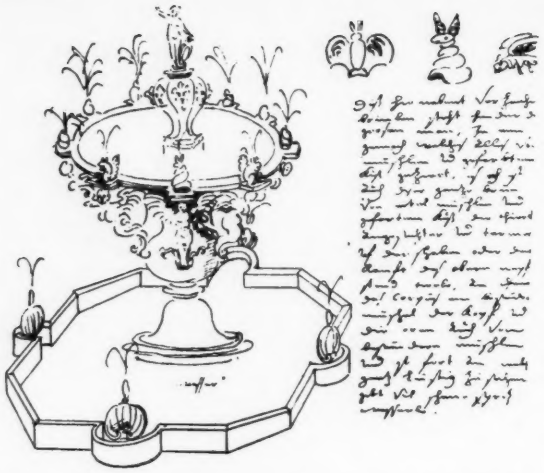

Fig. 19. Fountain of Thetis, Pratolino, drawing by Schickhardt (from Hülsen, 'Ein deutscher Architekt . . .', *Mit. d. Kunst. Inst. in Florenz*, II, 1912).

published in 1586.[45] Another poet, Cesare Agolanti, composed a topographical epic of over 400 eight-lined stanzas;[46] the manuscript, dedicated to Francesco, bears no date, but could not have been written later than 1587, the year of both Francesco's and Bianca's deaths (at the villa Poggio a Caiano).

Later descriptions and views of Pratolino suggest that it stayed generally intact and in operation through the seventeenth century and even for some time after it became the property of the house of Lorraine in 1737. Sgrilli's *Descrizione* of 1742 repeats most of the observations already reiterated by earlier writers. But he also speaks of certain additions and alterations, dating mostly from the late seventeenth century, ordered by Prince Ferdinando, son of Cosimo III;[47] and he admits, too, that 'many [things] have been taken away by time and diminished by the severe seasons'.[48] Only twelve years later, in 1754, Pratolino was visited by an English traveler who remarked, 'The house is kept in excellent order and repair, nor are the water-works totally neglected, but a deserted palace has the face of ruin. Pratolino has had its day.'[49] A late stage of decay is described by a German who stopped there in October 1798. He writes with Gothic enthusiasm of cracked walls, scaly ceilings, sagging floors, doves and swallows flying through broken windows, and rats and worms devouring half-length portraits of the Medici. And 'the avenues on the grounds', he says, 'are overgrown . . . . In Florence I have found no place that displays a more sublime nature, and wildness, and gentleness so combined . . . .'[50]

A similar romantic sentiment may have prompted the Grand Duke Ferdinand III of Lorraine to transform the grounds into a park in the 'English' style. Work began in 1819 under the direction of a Bohemian architect Josef Frichs. The palace itself was torn down in 1822.[51] Several years later a French traveler stopped to admire the trees and to disparage what was left or remembered of the original artificialities.[52]

Yet when Pratolino was just finished, Francesco de' Vieri chose to define it in general as 'a place for wild nature, surrounded by mountains and full of woods'.[53] Although the grounds were segregated from the countryside by a wall, they were also planted all over with trees. The palace, to be sure, commanded a symmetrical vista, the Prato dell'Appennino, to the north, and another, the avenue of fountains, to the south; but it also had to overlook the comparatively undisciplined growth on either side, and the scattering of paths, ponds, statues, fountains, grottoes, and outbuildings. However conventional his figure of speech may be, the poet Gualterotti would seem just in saying, as he does, of Pratolino that 'its every grace presents Art and Nature together in competition.'

The contest persisted in details. Inside the Appennino stood the figure of Thetis (fig. 19), encrusted from head to foot with sea shells, which de' Vieri describes as looking down 'in amazement [at the elegant fountain beneath her] and . . . dumbfounded that Art, in a certain way, surpasses Nature . . . .'[54] 'Here', says the poet Cesare Agolanti, speaking of a fountain in one of the grottoes in the palace,

45. *Le rime di Torquato Tasso*, IV, 356–357.

46. *La Descrizione di Pratolino del Ser.mo Gran Duca di Toscana Poeticamente Descritto da M' Cesare Agolanti Fiorentino . . .*, MS., Florence, Biblioteca Nazionale, Sezione Magliabechiana, Classe VII, Codice 8.

47. Sgrilli, *Descrizione*, pp. 6–8, 10, 17.

48. Sgrilli, *Descrizione*, p. 4.

49. *Letters from Italy in the Years 1754 and 1755, by the Late Right Honorable John Earl of Corke and Orrery*, (ed.) John Duncombe (London, 1773), p. 74.

50. Ernst Moritz Arndt, *Brunchstücke aus einer Reise durch einen Theil Italiens im Herbst und Winter 1798 und 1799*, 2 vols. (Leipzig, 1801), I, 200–202.

51. In 1872 the villa became the property of the house of Demidoff; see Cesare da Prato, *Firenze ai Demidoff* (Florence, 1886), pp. 199–272 and *passim*. In addition to the Appennino, the Chapel, and the Grotto of Cupid, the remnants of the original complex include stables and other outbuildings (Sgrilli: general plan: '4', '13', one of which ['4'] has been used as the palace since the time of Ferdinand III of Lorraine); also, the Fountain of Jove ('6'), the 'Bath or Basin of the Mask' ('14'), the Mugnone, and part of the stairs *a cordoni*. For other photographs of Pratolino as it is today see G. L. Orlandi, *Le ville di Firenze di qua d'Arno* (Florence, 1954), figs. 122–128.

52. M. Valery (Antoine Claude Pasquin), *Voyages historiques et littéraires en Italie, pendant les années 1826, 1827 et 1828*, 5 vols. (Paris, 1831–1833), III, 2–4.

53. De' Vieri, *Della marauigliose*, p. 24.

54. De' Vieri, *Della marauigliose*, p. 27.

'Art manifests immortal works, and Nature, too, her knowing.'[55] The smooth, chaste superstructure of the palace was undermined, so to speak, by the six wild grottoes on the ground floor. Visitors, however elegant, were fair game for the ubiquitous and low-born *fontanieri*. Such was the curiosity of Pratolino, that its design insisted upon striking and often incongruous juxtapositions: of smoothness and rough, symmetry and asymmetry, dryness and wet, art and nature.

Gualterotti's, de' Vieri's, and Agolanti's phrases on art versus nature are of course similar to remarks made about other villas. For example, Pliny the Younger speaks of a part of his Tusculan villa as displaying not only 'boxtrees cut into numerous [artificial] shapes', but also 'rows of little posts alternating with fruit trees, thus surprising one with the appearance of rustic simplicity in surroundings of studied formality'. The same villa also contained a formal garden and, adjacent to it, a meadow, 'the natural beauty of which', says Pliny, 'is as great as the artificial beauty just described . . . .'[56] Sebastiano Serlio used the words 'partly the work of nature, and partly the work of artifice' to describe the appearance of rusticated masonry together with the classical orders, which, he says, occurs notably in the work of Giulio Romano, not only in Rome, but also in Mantua, 'in the most beautiful palace called the Te'.[57] Two façades and the courtyard of the suburban Palazzo del Te are faced with stucco that simulates masonry consisting of both smooth and rough blocks of stone.[58] A more immediately striking juxtaposition occurs, besides, in the garden of the Grotto at the Palazzo del Te; breaking through the garden wall—richly and delicately ornamented above, plain below—is a cavelike opening that gives access to the shell- and clay-encrusted Grotto itself.[59]

But the garden of the Grotto is isolated by a wall from the symmetrically enclosed grounds that extend behind the Palazzo proper. The disorderly intrusion of the Grotto upon the secret garden is a sight that can elude the spectator who would admire the grounds in general, whose design would seem to have been no less consistently regular than, say, that of the ideal garden as envisioned by Alberti.[60]

Alberti, who wanted to emulate the ancients, suggests that the planning of grounds should be as rational as that of buildings. He would have areas defined as 'circles and semicircles, whose designs are esteemed in the plans of buildings, enclosed by laurels, cedars, and junipers with branches bent and intertwined . . . [and] pergolas of vines that are supported by marble columns, of the Corinthian order, the diameters of which should be the tenth part of their height.' Trees ought to be planted 'in line, at equal intervals and at corresponding angles—that is to say, in accord with one another.' Admittedly, he also enjoys grottoes encrusted with shells, spongious stone, and simulated moss, and he recommends 'a most pleasant meadow, where little streams of water may come unexpectedly from many places'; he would even allow 'humorous statues, if they are in no way obscene'.[61] But perhaps he would not have approved of such emphasis upon informalities as was to occur at Pratolino.

Buontalenti would appear to have abstained from the more consistently regular style that was in fact usual for elaborate country houses and their grounds—such as the direct predecessors of Pratolino itself: the villas Poggio a Caiano and Castello, and the Pitti Palace with the Boboli Gardens (a sort of suburban villa). It is true that the palace of Poggio a Caiano was regarded, at least by Montaigne, as the 'model' for the palace of Pratolino;[62] but it is also true that nothing wild, or crude, or fantastic obtruded upon the architecture of the late fifteenth-century building, or, for that matter, upon the assemblage of neat, geometrical plots that once surrounded it.[63] Perhaps even the initial ideas for Pratolino itself admitted of much less wildness than did the final design, as witness the differences between the preparatory drawings and the topographical renderings that show the Appennino and the entrance to the Grotto of Pan and Fame (figs. 4, 5, 13, 14).

The same kind of difference may be said to have existed between Pratolino and the predominantly architectonic Villa d'Este at Tivoli, although Montaigne says that Pratolino 'was made precisely in rivalry with this place'.[64] Other and equally conspicuous differences resulted of course from the slopes of the two sites, the amounts of water available to them, and the influences of the local styles of architecture. 'The Florentine', says Montaigne himself, 'has a little more delicacy' ('quelque peu plus de mignardise'), which he may have attributed to the shorter supply of water at Pratolino—enough for thin, linear jets,

55. *La Descrizione di Pratolino . . . da Agolanti*, fol. 82^{v}.

56. Helen Tanzer, *The Villas of Pliny the Younger* (New York, 1924), pp. 18, 22–23.

57. Sebastiano Serlio, *Regole generali di architettura . . .* (Venice, 1537), fol. 133^{v}.

58. Frederick Hartt, *Giulio Romano*, 2 vols. (New Haven, 1958), I, 94–98; II, figs. 152–157.

59. Hartt, *Giulio Romano*, I, 145–147; II, figs. 297–304.

60. On the plan of the grounds of the Palazzo del Te see Hartt, *Giulio Romano*, I, 91–93 and fig. A.

61. L. B. Alberti, *De re aedificatoria*, (ed.) Geoffroy Tory (Paris, 1512), fols. cxl^{r}, cxli^{r} (Book IV, Chapter IV).

62. Montaigne, *Journal de voyage*, p. 275: '. . . la forme de ce bastiment est le modele de Pratolino.' The two palaces had at least one salient trait in common: a *piano terreno* in the form of a balustraded terrace. Another similarity occurred in the superstructures: the north front of the palace of Pratolino, with its vertical division in three and its recessed middle, resembled the east and west sides of the late fifteenth-century building.

63. See the topographical painting of Poggio a Caiano by Utens (cf. note 7), reproduced in Dami, *Il giardino italiano*, pl. VI.

64. Montaigne, *Journal de voyage*, p. 246.

but not necessarily for such abundant, massive spouts as those at Tivoli.[65] More 'delicacy', of a sort, was required, besides, by the Florentine tradition of architecture as manifested, for example, by the palace of Poggio a Caiano, Pratolino's 'model'. In apparent size and massiveness, and in grandiosity of approach, neither one of the Florentine palaces compares with the building at Tivoli. They are more distinguished, on the other hand, by an appearance of neatness—of smooth, light surfaces ornamented with sparing, dark patterns. The neatness of the palace of Pratolino, moreover, was made to coexist with the wildness of the surrounding woods and of the celebrated grottoes on the ground floor—infinitely superior to the grottoes at Tivoli, according to Montaigne. Unlike Pratolino, and also unlike Poggio a Caiano, or Castello, or the Boboli Gardens, the Villa d'Este would seem to have been composed in a way that may imply neither a contest between art and nature nor a clear predominance of one over the other, but rather a sort of reconciliation. The natural steepness and difficulty of the terrain was at once preserved and monumentalized in a display of terraces and stairways, some of which led up, higher than the original elevation, into the palace façade. The available water, however 'muddy and unpleasant' (Montaigne's words), was transformed into monumental jets and cascades, a complement to the monumental architecture of the place at large: palace, nymphaea, terraces, stairways. Appearances and suggestions of art and nature tended to merge. The composition of the Villa d'Este thus provided some precedent for the grandiose and lively ensembles of seventeenth- and eighteenth-century Baroque country houses and their surrounding gardens and parks.

Pratolino was no more like its rival, the Villa d'Este, than it was consistently faithful to its model, Poggio a Caiano. In turn, no later villa would seem to emulate the peculiarity of arrangement that Buontalenti devised for Pratolino, although it may be nearly true that, as Baldinucci says, the various hydraulic contrivances have provided models for 'all those who afterwards have worked in similar things throughout all of Europe.'[66] Pratolino thus honored its architect, who himself was reputedly 'a witty man' who 'on occasion made jokes with much liveliness.'[67] It was a credit as well to its original owner, Francesco I de' Medici; Francesco may be remembered not only for his neglect of affairs of state and his devotion to Bianca Capello and to scientific experiments, but also for his nearly lifelong friendship with Buontalenti, who is said to have accompanied him on prowls through the city on hot nights,[68] and designed for him the most elaborate and curious of all the Medicean villas.

65. It is possible that Montaigne's 'little more delicacy' refers only to the waterworks rather than to the layout as a whole. See the alternative reading of the passage in question as given in David R. Coffin, *The Villa d'Este at Tivoli* (Princeton, 1960), p. 127.

66. Baldinucci, *Notizie*, II, 497.
67. Baldinucci, *Notizie*, II, 531.
68. Baldinucci, *Notizie*, II, 493, 531.

The Period House in the Nineteen-Twenties

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THE history of twentieth-century American residential architecture does not as yet include a full account of the development of dwelling design during what may be called the era of the Period House, the years 1910–1930.[1] These decades have been regarded by many historians as a time of unfruitful stagnation in domestic architecture which commenced with the eclipse around 1910 of the groups led by Wright in the Middle West and Bernard Maybeck and the Greene brothers on the Pacific Coast, and continued until the early thirties when the tide began to turn decisively against eclecticism.

But while the victory of eclecticism brought to an end the bold experiments of the early years of the century, it did not interrupt the broad process of evolution in the design of suburban dwellings which had long been in progress in the United States. While seeking motifs from abroad in matters of external design, the architects who first began to popularize the Period House in the early 1890s had drawn extensively upon the same source as Wright and the other turn-of-the-century pioneers: the wholly American Shingle Style. The planning of the first Period Houses indeed owed almost nothing to the influence of the European past. Rather, the early Period House took over with little modification the most advanced planning of the shingled houses of the eighties, and as far as the treatment of the plan was concerned there was virtually no break between the two styles. But between 1890 and 1930 the design of the Period House was steadily modified, in accordance with the changing needs of the times. Out of this gradual development emerged three important concepts in residential planning which survived the reaction against eclecticism in the early thirties to influence profoundly the further evolution of domestic architecture in the United States—the open plan, the use of rambling one-story designs, and the provision of outdoor living areas. The introduction of these ideas has been generally associated with the work of those architects who rejected eclecticism in the early thirties and who, at least initially, drew much of their inspiration from contemporary European architecture. It has not been fully recognized that these innovations first achieved considerable currency here at a time when the influence of eclecticism was paramount, and that they were the product of a process of evolution in the planning of suburban and country residences in this country which extended back more than five decades.

Although the Period House first began to achieve widespread popularity in the 1890s, the influence of eclecticism had been strongly felt much earlier in the century. The hood mouldings, pointed windows, and other details of the Gothic houses of the mid-century reflected this influence, as did the round stair turrets and Mansard roofs of the sixties and seventies. The Period House did not, however, merely borrow occasional details at random from several styles, as was generally done earlier, but made an effort to imitate the type of massing, the characteristic window proportions, the materials, and at least some of the details of a particular older style. Thus the array of turrets, gables, porches, and projecting bays of the post-Civil War house gave way to much simpler outlines derived from Tudor, Colonial, and other older styles. Ashlar or rubble stone walling was abandoned in favor of attempts to reproduce the stonework of English and French country dwellings, while long thin bricks with fine jointing were replaced by the stubbier bricks and wider joints characteristic of older North European brickwork. Half-timbering and stucco were introduced, while wood surfacing was reserved for Colonial designs. Only rarely did an owner's means and his architect's ambitions combine to produce an effort at exact imitation, but in most instances enough was done to make the relationship between a Period design and its antecedent style clearly visible.

The arrangement of the plan of the Period House also differed greatly from that of its Victorian predecessors. Beneath all of its turrets, gables, and porches the mid-century house was predominantly square in plan, and its interior was divided into a large number of rooms of approximately equal size, including on the ground floor a kitchen, dining room, hall, parlor, and in even a very

1. The writer wishes to thank Professor Albert Bush-Brown of the Massachusetts Institute of Technology, who kindly read the early drafts of this paper and offered the author invaluable comment and criticism.

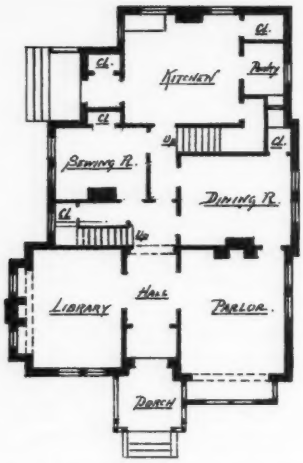


Fig. 1. Plan of house, North Cambridge, Mass. (from *American Architect*, 1879).

small house, a music room or library (fig. 1). In contrast, Period designs used long narrow rectangles and substituted for a multiplicity of spaces fewer but more spacious rooms. In the smaller Period House almost all of the ground floor area was concentrated in the living room, the dining room, and the kitchen, while such spaces as the stair hall and reception room became distinctly subordinate or disappeared entirely. As the house grew in size, a library or other living spaces might be added and the service wing elaborated, but the number of rooms was far smaller than in a Victorian house of comparable size.

The influence of the shingled houses of the seventies and eighties was responsible for most of the differences between the Victorian house and its Period successors. At the time of its inception in the middle seventies the Shingle Style represented a fusion of elements derived from the English Queen Anne revival and the picturesque Victorian exterior. But the picturesque elements were rapidly suppressed and the more advanced designs among the houses of the later seventies emphasized low solid masses and made comparatively sparing use of turrets, gables, and other features which broke the roof line.[2] Frequently an overhanging second floor helped to emphasize the horizontal lines of the elevation. The result was often very close to Tudor or Queen Anne design as it was usually called, and the shingled house from the early eighties (fig. 2) could, with different surfacing, easily have passed for Queen Anne.

2. The development of the design of the shingled houses of the seventies and eighties is thoroughly discussed in Vincent J. Scully, *The Shingle Style* (New Haven, 1955).

This evolution in the external appearance of the shingled house was closely related to a striking change in the treatment of the interior. The square, cut-up plan of earlier decades was replaced by a freer and more open interior. By the early eighties a completely new type of house plan had been developed. It was organized around a few large rooms—living room, dining room, hall—arranged in one or more long thin blocks and usually connected by means of broad sets of sliding doors. The parlor, music room, and library either disappeared or became secondary spaces subordinated to the expansive new living room which was now the center of family activity.

Designs of this type were to be found at first with particular frequency among seashore and country houses where the site offered room for a rambling plan while the less formal life of a vacation establishment made simplified room arrangements appropriate. By the nineties, however, planning of this type was becoming the norm in the better class of dwellings being built in the new belt of suburbs between the city core and countryside. This belt was the product of the construction of steam and electric railways around our rapidly growing cities. In these new suburbs lot sizes were much larger than in the older residential districts closer to the city core where restrictions on frontage had hitherto permitted, at best, a square house with a narrow strip of lawn at the sides and had more frequently limited the free-standing urban dwelling to a narrow rectangle whose long axis was at right angles to the street, with most of the rooms facing the windows of neighbors. On the larger sites which had now become available it was possible to place the long axis of the house parallel to the street, dividing the lot into a front lawn and a private garden at the rear. Thus the type of plan which had been developed in the eighties for use on country sites could be employed on suburban lots. The product of the combination of the Shingle Style plan and Period exterior was a new type of suburban dwelling which became popular in the early nineties and which, although undergoing important modification, remained standard in the well-to-do suburb for over four decades.

Although Queen Anne was the first of the Period styles to achieve general popularity, designs based on a variety of other older styles soon appeared. These styles derived from the sixteenth, seventeenth, and eighteenth centuries, and were the product of the rural, rather than the urban architecture of these centuries. Thus a style based upon the smaller Norman manor house was much used, along with Queen Anne, in houses of irregular outline. But at the same time the movement towards the use of simple rectangular forms, which in commercial and institutional architecture produced the classicism of the nineties, was reflected in widespread interest in Colonial and Georgian as well as Mediterranean dwellings which were usually based upon the smaller Italian Renaissance villa. The choice of such models for the design of the Period House

Fig. 2. House in Downington, Pa., by Wilson Ayre (from *American Architect*, 1883).

reflected the new character of the suburban house, which was now treated as a country residence on a small property, rather than as a modified city dwelling.

The new type of suburban dwelling was built at first largely for the well-to-do. It was not until after World War I that the new ideas were generally adopted in smaller, less costly houses, and the descendants of the Victorian house ceased to be constructed in large numbers. But while this gradual change in the character of the mass of suburban dwellings was in progress new experiments in planning were undertaken, especially in the years 1920–1930. Of particular importance in encouraging these new developments was the continued growth of suburban lot sizes, which proceeded at an accelerated pace as the automobile came into general use. The trend towards an informal plan also continued to develop under the influence of such diverse factors as changing notions of child-parent relations and the servant shortage (this was natural to a high-wage economy but became more acute with the termination of mass immigration in 1920). In addition to the influence of these social and economic changes dwelling design was affected by specific technological developments such as the improvement of central heating systems and the development of gas and electric kitchen appliances.

Because of their evolutionary character the new developments in planning were introduced almost without arousing debate over their merits. This was particularly noticeable during the twenties, when, despite the fact that many architects were relying upon methods of planning in use before 1900 while others were employing new ideas of great importance for the future, there was no apparent division of the profession into conservatives and progressives. There was, on the other hand, general recognition that the Period House was, with rare exceptions, far from an exact copy of an older type. Indeed some designers of Period Houses felt that their work should properly be described as modern architecture:

> I wish people would accept the present method of construction for what it is, and be satisfied to call the result 'modern'. A modern style has as much right to exist as a Renaissance or Colonial. It does not necessarily mean anything cubistic or impressionistic. Like all other styles, it takes sound traditions wherever they can be found, and adapts them to present day conditions.[3]

Adapting sound traditions meant, of course, the use of a plan which did not derive at all from the older styles. This concept of the relation between the Period House and its antecedent style was set forth very clearly by one of the most consistently progressive architects of the twenties:

> There is . . . no type of European architecture so adaptable to our uses in America as the English or Norman Country House. . . . The style is informal, and hence appropriate to our modern way of living. The interiors of the buildings must necessarily be modified to conform to our American ideas of comfort and practicality, but American architects are masters of the art of planning convenient and liveable quarters. Because of its plastic, informal qualities the English and French architecture can be made to conform to any conceivable interior arrangement.[4]

3. William A. Delano, quoted in A. Lawrence Kocher, 'The Country House', *Architectural Record* LXII (1927), 342.

4. Frank J. Foster, 'Use of English and French Types for American Country Homes', *Architectural Forum* XLIX (1928), 361.

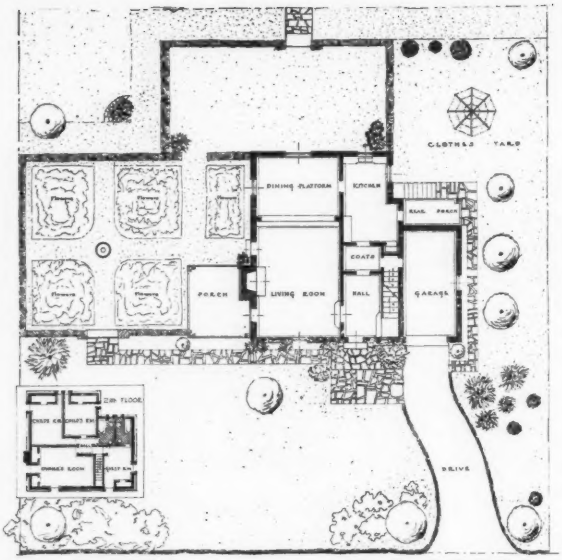


Fig. 3. Plans, William E. Frenaye House, Llewellyn Park, N. J., by Howard and Frenaye (from *Architectural Record*, 1927).

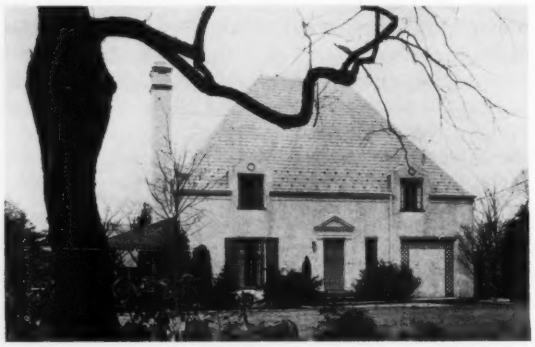


Fig. 4. Entrance front, Frenaye House (from *Architectural Record*, 1927).

But those who wrote about the Period House in the twenties dismissed the question of the plan with general statements of this kind, and passed on to the burning issue of the day, the question of the propriety of the use of the Period exterior. Planning of the interior, to which the stream of books and articles produced by the advocates of the New Architecture in Europe were devoting most of their attention did not seem to be, in this country, a matter which required discussion outside the drafting room. New ideas such as the open plan were incorporated into an increasing number of houses through the response of individual architects to changing ideas concerning 'comfort and practicality' rather than as the result of the formulation of new theories of dwelling design. The innovations were not made by a small group of men who were conscious of being pioneers, but instead emerged from the work of many architects. Few men were invariably progressive, while many progressive designs were made by men whose work usually followed more conventional lines.

Knowledge of the new developments in planning was nevertheless disseminated widely, for the new innovations appeared in the work of many well-known architects whose designs received frequent publication in books and periodicals. To emphasize this important fact, the examples used here have been drawn entirely from published materials; the majority are reproduced from the leading professional journals of the day.

Among the characteristic features of contemporary residential design which are generally believed to have been introduced after the reaction to eclecticism, the open plan is perhaps the most important. This term usually describes a plan which eliminates partitions between the main living areas of the house. Requirements of privacy and noise-proofing normally have prevented other portions of the house from being joined together, although recently there has been a tendency to remove or reduce partitions around the kitchen.

This type of plan is to be found, in isolated examples, in Period Houses built shortly after the turn of the century. It was not until the twenties, however, that the open plan began to be used regularly. One approach combined the living and dining areas into an ell, with the short leg of the ell assigned to a dining alcove of the type now in general use. Another kind of design placed the living and dining areas together in a simple rectangular space. The Frenaye House (figs. 3 and 4) is a particularly compact version of this type of design. Its ground floor contains only a small kitchen and a vestibule in addition to the living-dining room which occupies the bulk of the floor area. But despite its small size this house and others similar to it which were built in the twenties were not inexpensive dwellings. Substantially constructed, frequently with masonry walls and slate or tile roofs, they stood on ample lots and were carefully planned and equipped. Their large lots and fine materials, along with the central heating, plumbing, and electrical systems, made these houses costly to construct, and their designers were thus compelled to develop plans which made the most of the space available. The same problem was being encountered abroad at this time, and the European New Architecture devoted a great deal of attention to the planning of very small houses and apartments.

The Brainard House (figs. 5 and 6) is an example of an interesting type of small Period House intended to provide quarters for a single person. Almost all the space in the house is incorporated into one large room one-and-

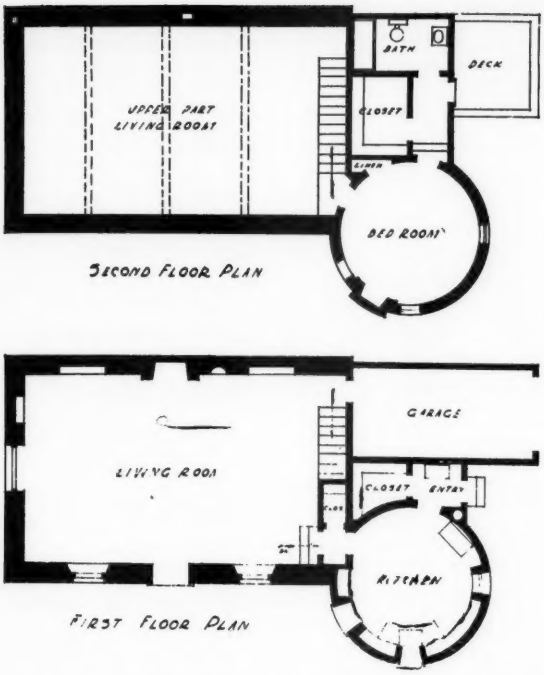


Fig. 5. Plans, Harry Brainard House, Santa Barbara, Calif., by G. W. Smith (from Staats, *California Architecture in Santa Barbara*).

Fig. 6. Interior, Brainard House (from Staats, *California Architecture in Santa Barbara*).

one-half stories high. This studio has received elaborate period treatment with trussed rafters, massive fireplace, and heavy 'antique' furniture. But in addition to this room, which is treated to suggest a mediaeval hall, the house contains only a small kitchen, one bedroom, and a bath—arrangements devised to meet the needs of a specialized and distinctly contemporary type of household.

The open plan was also used in more pretentious residences such as the Baer and Wilson houses (figs. 7, 8, 9, and 10). These dwellings are generously planned, and each includes provisions for accommodation of a staff of servants, but they are by no means large houses by nineteenth-century standards. The appearance of designs of this type foreshadowed the extinction of the large mansion, which was soon to become an impractical luxury for all but a very few. In the houses illustrated the open plan provides a spacious interior within a building of comparatively limited size, but produces arrangements which are not particularly suitable to a household with several servants. But as the number of servants diminished in even the wealthiest households, this type of dwelling became, for people of means, the logical successor to the bulky mansion.

The effort to create spacious interior arrangements was not, however, confined to those houses which used the open plan. The open plan merely represented a final step in the process of simplification in planning begun before 1890. Even without this final step, the process of eliminating some rooms and reducing the size of others led to an important evolution of the Period House plan. A new concept of the kitchen as a small compact space—a concept fundamental to twentieth-century residential planning—emerged; entry halls were generally reduced in size where they did not disappear, and secondary living spaces were ruled out unless the house was relatively large. All these changes left more space for the living room, which was now the chief feature of the plan. Colonial houses which used a center hall scheme often placed the living room on one side of the hall while the kitchen and dining room shared the space on the other side of the house. Still more prominence was given the living room by the type of plan illustrated by the Burgess House, which, clothed in Tudor or Norman dress, was a standard type of suburban dwelling in the twenties (fig. 11). The series of small spaces of more or less equal size which occupied the ground floor of the Victorian house has given way, in this type of plan, to an arrangement composed of a dominant living room area surrounded by several minor spaces—the basic arrangement of the modern house.

A second development which was to be of great importance for the future of residential design was the use of outdoor living areas. The veranda had, of course, been a traditional part of the nineteenth-century house. But it did not offer privacy and blocked light and air from the interior. Moreover it was difficult to graft a veranda onto a Period design and still give the house a Period appearance. A small porch placed at one end of the house or sometimes forming a small wing set at right angles to the main block was therefore substituted for the veranda. But at the same time many Period Houses were provided with a new type of outdoor living area which has since come to

Fig. 7. Plan, Arthur Baer House, St. Louis, Mo., by Beverly T. Nelson (from *American Architecture*, 1927).

Fig. 8. Entrance front, Baer House (from *American Architecture*, 1927).

Fig. 9. Plan, Mrs. Newton R. Wilson House, St. Louis, Mo., by Study and Farrar (from *American Architecture*, 1928).

Fig. 10. Entrance front, Wilson House (from *American Architecture*, 1928).

play an important role in the design of the suburban dwelling—the living terrace at the back or garden side of the house.

Prior to 1890 the first floor of most houses built in this country was raised several feet above the ground grade. The Period House broke with this practice. Its ground floor was customarily no more than twelve or eighteen inches above grade and direct access to a terrace from within the house by means of one or two steps therefore became possible. The terrace thus easily reached was an informal paved area at the rear of the house which served as an extension of the interior living spaces and like them was used for sitting and dining. Not infrequently there was access from all of the principal rooms of the house.[5]

5. This theme occurred with particular frequency in the work of the well-known residential architect H. T. Lindeberg. In his designs the terrace often becomes the focal point of a long rambling plan. See *Work of H. T. Lindeberg* (New York, 1940).

There was, in the European tradition, some precedent for the use of an informal garden terrace at the back of the house, deriving mainly from the late seventeenth and the eighteenth centuries. But the use of the terrace was not confined, in the twenties, to cases in which its appearance could be justified by an appeal to precedent. Instead, the terrace appeared in Tudor, Norman, and Colonial types although historical precedent was altogether lacking. This use brought with it the problem of the treatment of the access doors from the house. Sometimes the problem was faced boldly, as when a row of French doors was cut into the elevation in place of the windows which a more historical treatment would have required. But this practice was not usual. In most cases only a single unglazed door led to the terrace even where, as in Florida and Southern California, the climate suggested the possibility of a different arrangement. But even without the use of extensive glass areas there was achieved a much closer relationship between house and garden than had previously existed.

During the twenties a rapidly increasing number of dwellings were built on lots that permitted a generous allotment of garden and provided enough frontage for the main axis of the house to be turned parallel to the street instead of at right angles to it. Where the majority of the houses in a neighborhood were built in this manner the character of the residential street was greatly altered, since instead of attention centering upon the front lawn and veranda the private living areas at the back of the house became the most important portion of the lot. This reversal of the traditional pattern of site use led, later, to the familiar elevation treatment of the suburban houses built by the modern school: closed entrance side with high strip windows, and broad glass areas facing the garden at the back. And after 1945 development houses, adapting the same idea in less striking fashion, began to put the picture window on the side of the house which faced the terrace rather than the street.

Along with the open plan and indoor-outdoor living areas, a third characteristic of the work of the modern school has been the use of one-story plans which arrange the rooms of the house in several long slender wings. With the introduction of designs of this type in the thirties are associated the names of Wright and such younger architects as Neutra, Harris, and Wurster. But this development was also closely related to work done in the twenties by Period architects. Two Period designs which lead to the post-depression work of the modern school are illustrated here, the Wilson House (figs. 9 and 10) and the Studio Cottage at South Norwalk (figs. 13 and 14). Of particular interest in these two houses is the division of living, sleeping, and service areas into separate wings, to form a zoned plan. Present also are a number of other features which were to become typical of the houses of the modern school: an open plan, orientation of the main rooms away from the street, changes in level between the wings, and arrangement of the bedrooms on a single-loaded corridor. The stonework and a few of the exterior details imply that these are Colonial farmhouses, but their proportions and massing obviously do not derive from the past, and with different fenestration these houses would pass much more easily for Modern than for Colonial.

A second type of one-story design developed in the twenties was not to become so closely identified with the modern school, but nevertheless has played an important role in the past three decades. It was a relatively compact type in which the bedrooms formed the crossbar of a tee, the long leg of which was occupied by the living, dining, and service areas as in the Baer House (figs. 7 and 8). This type of plan was much used in the thirties by development builders who gave their products such labels as Cape Cod Cottage, while after the war it appeared, with little alteration, in innumerable ranch houses. But the same basic plan also appeared in the work of the modern school. An

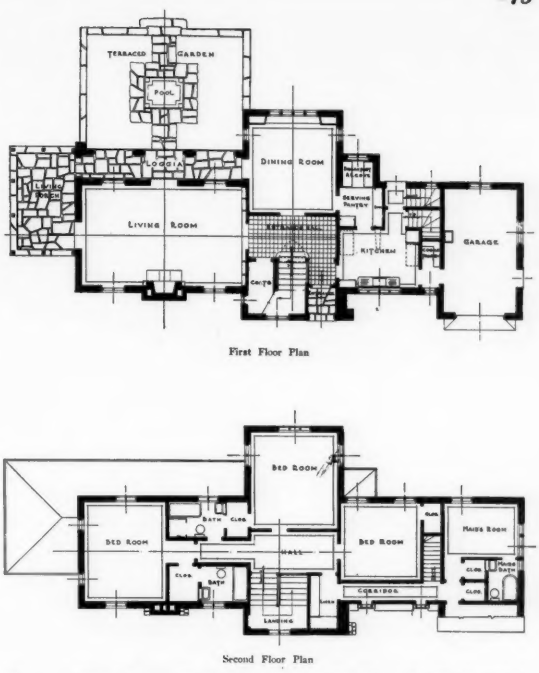


Fig. 11. Plan, Ernest H. Burgess House, Kenilworth, Ill., by White and Weber (from *Architectural Record*, 1925).

Fig. 12. Garden front, Burgess House (from *Architectural Record*, 1925).

interesting example is the house which the West Coast architect Pietro Belluschi built for his own family in 1937 (figs. 15 and 16). The bare white wall and flat roof which had symbolized modern architecture to many American architects in the early thirties is here replaced by a much less uncompromising idiom, while the plan of the house follows that of the traditional Baer House, except for the

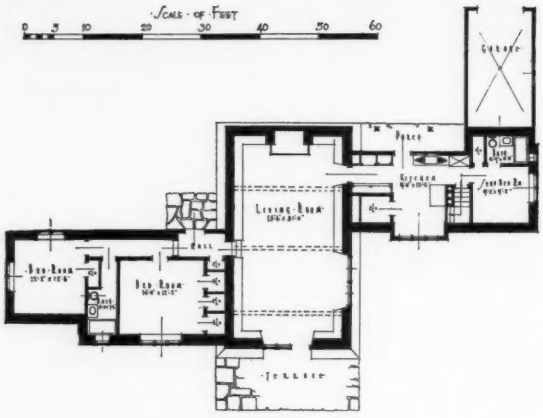


Fig. 13. Plan, Studio Cottage, South Norwalk, Conn., by Frank J. Foster (from *Architectural Forum*, 1925).

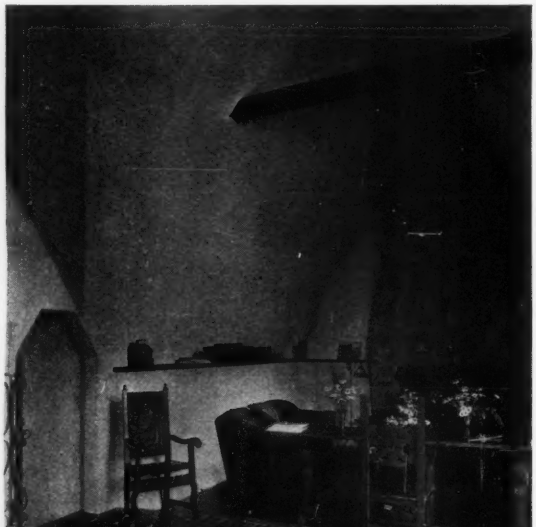


Fig. 14. Detail of living room, Studio Cottage, South Norwalk, Conn. (from *Architectural Forum*, 1925).

handling of the entry. The Belluschi House shows that there remained, in the later thirties, considerable common ground between the modern and the eclectic schools.

While many one-story houses were built in the East and in the Middle West in the years prior to the depression, this type of dwelling was to be found with greatest frequency along the Pacific Coast, where the tradition of the Spanish adobe was influential. This tradition had largely died out in the latter half of the nineteenth century, and only began to be revived after 1900. Out of the revival movement came designs which combined the long rambling plan of the adobe with a new distribution of room spaces and new circulation patterns. In the Thompson House (figs. 17 and 18) the influence of the adobe is reflected in the great extension of the plan, which in the tradition of the adobe is only one room deep throughout. But in place of the open gallery which ran the full length of the old houses there is circulation through the main living areas to corridors in the bedroom and service wings. The little gallery tacked onto the bedroom wing is a porch rather than a circulation artery. The patio customary in most of the Spanish houses is absent, since the plan is an ell rather than a closed rectangle, and the house is opened to the unenclosed garden which has been substituted for the patio by broad glass areas which have been introduced into the main block.

Among the revival adobes of the twenties a very great variety of design was to be found. The use of the adobe style did not lead to an attempt to force a twentieth-century house into the shape of a Spanish villa. The architect of the revival adobe instead developed his plan with little more than a side glance at the Spanish precedents. He made as few or as many wings as he wished, made the house one, one-and-one-half, or two stories, and distributed the rooms between floors without following any fixed rules. Where a steep site made it appropriate a change in level might be introduced between wings, while loggias and patios could be utilized as features of the design or dispensed with, as the architect elected.

During the first phase of the reaction against eclecticism, which began around 1930 and ran its course in the depression years, Period designs of the type just considered made little contribution to the development of the 'modern' house. The new proponents of modern architecture, whose ranks swelled rapidly in the depression years, patterned their first efforts upon the revolutionary work which was being done abroad. They adopted the compact multi-story plan characteristic of the cubic houses of the New Architecture (or International Style as it was labeled in this country), along with the bare white wall and the flat roof. Most of these early designs were paper projects drawn by architects lacking, for the moment, actual commissions. A few buildings of this type were built during the depression years, but it was only with the revival of building later in the decade that the new ideas could be tried out on any scale. By this time, however, the proponents of a new style had turned much of their attention to the development of the extended, one-story designs with which the modern house has since been so strongly identified in this country. The manner in which this develop-

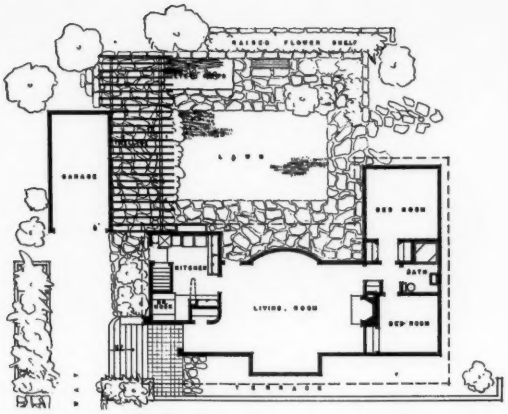


Fig. 15. Plan, Pietro Belluschi House, Portland, Ore., by Belluschi (from J. & K. Ford, *The Modern House in America*).

Fig. 16. Garden front, Belluschi House (from J. &. K. Ford, *The Modern House in America*).

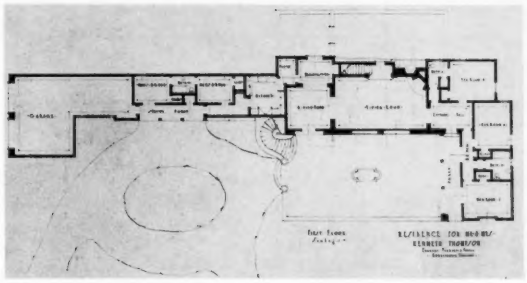


Fig. 17. Plan, Kenneth Thompson House, Santa Barbara, Calif., by Edwards, Plunkett and Howell (from Staats, *California Architecture in Santa Barbara*).

Fig. 18. Garden front, Thompson House (from Staats, *California Architecture in Santa Barbara*).

ment was influenced by Wright and the others of the small group who carried on the battle against eclecticism in the twenties is well known. But of perhaps greater importance was the influence of that more widely diffused tradition of design which had developed in the twenties behind Period disguise. Such houses as the Belluschi House or the Robbins House by William Wurster, another West Coast architect, clearly show the influence of the Period tradition (figs. 19 and 20). Wurster's houses of the middle thirties often employed rambling plans of the type used in the adobes of the twenties, combined with a new treatment of the fenestration and a new choice of materials, to produce a very different kind of exterior. They are the product of a transition to the new style of the West Coast which was to be extremely influential throughout the rest of the country, and which, based upon the use of natural materials, pitched roofs, and long horizontal lines, forms a striking contrast to the cubic style which was imported earlier from Europe.

The depression forms a sharp dividing line between the era of the unchallenged ascendency of the Period House, and the start of the vigorous challenge of the modern movement. The construction of Period Houses continued throughout the thirties, and the Period House was indeed relatively more popular than ever before. But there were far fewer of the elaborate designs which had set the fashion earlier. Instead the Period House had become largely a development product which derived its Period effect from little more than the application of a few lengths of wood to a stuccoed gable, to suggest half-timbering, or a bit of fluted trim placed around the entrance to a Colonial design. But while the Period House was achieving universal popularity at the hands of the speculative builder, the modern movement was rapidly gaining adherents within the architectural profession. Innovation in residential design thus became, during the thirties, the province of the modern movement, which, however vigorously it rejected

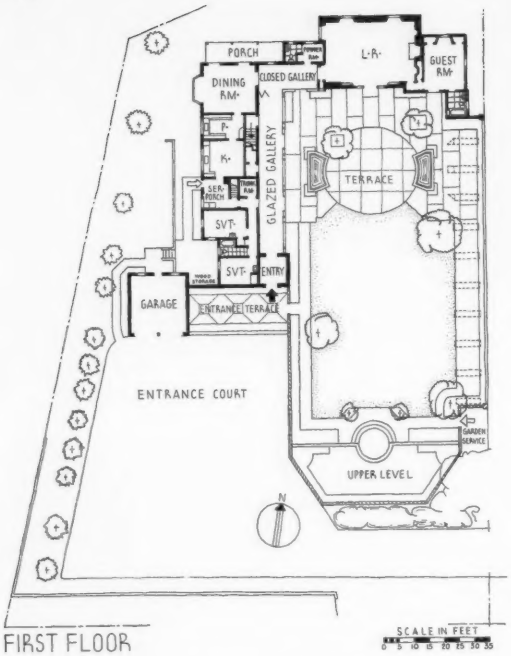


Fig. 19. Plan, George E. Robbins House, Hillsborough, Calif., by William Wurster (from *Architectural Forum*, 1936).

Fig. 20. Garden front, Robbins House (from *Architectural Forum*, 1936).

eclecticism, had drawn many of its basic ideas for residential planning from the work of those who had made their innovations in the name of Period design.

Letters from Louis H. Sullivan to R. M. Schindler*

Edited by ESTHER McCOY Santa Monica, California

THE CLIFF DWELLERS
CHICAGO

Dec. 12th, '18

Dear Mr. Schindler,

Your letter Dec. 9th recd last evening. I am very glad to learn that you and Mr. Smith are to occupy the Wright house in Oak Park for the winter. I last heard from Mr. Wright from Victoria aboard ship. Have no idea how long he is to be away. I recently received a call from Mr. Endah on his way to join Mr. Wright.

I accept your kind invitation to be with you at 949 Chicago Ave. on Sunday at 2 o'clock. I presume I take the Oak Park L and get off at Oak Park station. If not: kindly post me by letter or telephone.

Sincerely,
Louis H. Sullivan

R. M. Schindler, Will Smith, and Endah, a Japanese architect—Schindler wrote of him as Arata Endo—were all draftsmen in Wright's office. Schindler had met Sullivan soon after his arrival in the United States in the spring of 1914; he had come to accept a position with Ottenheimer, Stern and Reichel, a Chicago architectural firm which occasionally advertised for draftsmen in a Viennese architectural journal. (Ottenheimer had once been an Adler and Sullivan draftsman.)

Schindler, while an architectural and engineering student in Vienna—he attended the Akademie and Technische Hochschule at the same time and received degrees from both—had become aware of the revolutionary work of Sullivan through Otto Wagner, a director of the Akademie, and his friend Adolf Loos, the architect. After Schindler went into Wright's office in 1918, he met Sullivan again on one or two occasions.

In October 1918 Sullivan had completed the editing of *Kindergarten Chats*, originally published as a series of essays in the *Inland Architect and Builder* in 1901–1902. Schindler undoubtedly discussed the possibilities of European publication of the book with Sullivan when he came to Wright's studio in December. The young man was touched by Sullivan's decline and devoted to his work; he had paid Sullivan tribute in the Buena Shore Club, designed in 1916 for Ottenheimer, Stern and Reichel. Soon after the meeting with Sullivan, Schindler wrote Adolf Loos asking his advice. After a long delay, his letter was answered on 2 October 1919 by Elsie Loos-Altmann. She announced her recent marriage to Loos; he had been ill for some time and had just recovered from an operation.

Schindler addressed his reply to Loos. *Kindergarten Chats* could not be published in the United States, he wrote,

without making a down payment immediately (about $3000.00). However, if it should be possible to have this book published in Austria or Germany the difference of the rate of exchange would not only make it possible to pay the cost but would also enable Sullivan to have an income from the transaction. The book contains 90,000 words; it should be printed on good paper, and if possible have a flexible binding. Could you please find a publisher for this project and manage to get an estimate?

Schindler added nostalgically:

I often think of you and our wonderful evenings together. If I had not found shelter with Wright not even the threat of hunger could keep me here any longer.

Early in 1920, Schindler received the following letter (undated) from an Otto Breuer of Vienna.

Mr. Loos asks you to send him the book of the architect Sullivan. He hopes very much to place it with one of the leading publishing houses.

On 11 March 1920, Schindler sent the manuscript to Loos, and wrote him:

The edition should be limited to about 1000 copies. Please provide a flexible binding with a simple title, also good paper and a good type; however, it would be advisable to print as much as possible on one page in order to save paper. Mr. Sullivan can obtain about $2.00 (per copy) from the dealer—and it is important that something be left over for him.

Could you please let me know how much the edition will cost so that we can start to raise the necessary funds through orders?

Would you be so kind as to take good care of the manuscript and to return it in case you fail. Mr. Sullivan is not able to have it retyped.

*These letters were among Schindler's papers when he died in 1953.

THE CLIFF DWELLERS
CHICAGO

June 29th 1920

My dear Mr. Schindler,

I have tried several times to get you by phone, but unsuccessfully.

I should like very much to know the whereabouts of my mss Kindergarten Chats which I let you have several months ago. Has it been returned to you from Vienna? and if so what is the news? I understand Mr. Wright is to be here shortly.

Trusting everything is going well with you I am

very truly yours
Louis H. Sullivan

P.S. As things are so flat I don't spend much time at my office 1808 Prairie Ave., but I am usually there between (or from) 11:30 to 12:30. Phone Calumet 3217 or a word will reach me here.

LHS

It was not until the late summer of 1920 that Schindler had any news for Sullivan, and this came from someone Schindler described as 'a pupil of Mr. Loos'. This was probably Richard Neutra, with whom Schindler had corresponded since leaving Vienna.

Schindler wrote to Sullivan from Taliesin on 26 August:

In order that you may understand the following I must tell you all I happen to know about Mr. Loos.

He is born in Austria but one of the greatest influences on his life seem to be the few years of his youth he spent in America. The result of this trip was a series of articles he published in a Vienna paper, giving an analysis of the modern aims and characteristics of the manners, architecture and life of the Western World.

He spent many years in Vienna as Architect, doing mostly interior decorating and forming the only serious opponent against the architectural atrocities of the 'Secession'.

Finally he had occasion to build a large structure on one of the historic places of Vienna. He solved his task in a most simple and excellent way—but the Viennese populace was of the opinion that the importance of the place required a most ornate and gingerbready structure and a wild agitation was started in the papers. Loos rented the largest hall in Vienna and started to give lectures about the problem, until he actually was able to avoid any disfiguration of his design, in spite of the originally general opposition.

At that time I visited the school of architect O. Wagner and took up the fight for Loos inside of this group. Wagner was about to resign his position on account of his age, and I proposed to him to recommend Loos as his successor. A few of us got in touch with Loos, and as it seemed impossible for him to get the nomination, he resolved to start his own school.

I shall not say anything about the work of this architect, but will show you all reproductions of it which I possess the next time I will be able to see you.

It seems now that a group of wealthy art-friends in Paris have resolved to further modern art in a concrete way and have invited Loos to design the necessary buildings for them. L. is thinking about transplanting his school to Paris and is asking if you would care to join him there, and take your place at the head of the school. (All lectures to be English.) I have no further information about the status of the whole plan and think it will be best you write to Mr. Loos himself.

Although having not yet any direct news about the manuscript I hear that L. said he would try to publish one of your books, and the above offer convinces me that he is in possession of the manuscript and has read it.

The address is: Mr. A. Loos, Wien 1. Giselastrasse 3, Austria. Mr. Wright is at present in Los Angeles and your last letter to him is still here awaiting his return by the end of the week.

Chicago, Aug. 31st, 1920

Mr. R. M. Schindler
Spring Green, Wis.
Dear Mr. Schindler,

I have carefully read your very interesting letter of Aug. 26th. I am very glad to have news of Mr. Loos but should prefer, before writing to him to see some illustrations of his work, if that is possible. Could you not forward to me such as you have with a few words of explanation.

The thought of giving a series of lectures in Paris is rather fascinating, but to be head of a school might prove at my age to be quite another matter.

What puzzles me is what appears to be the great difficulty of communicating with Vienna, for it is now almost six months since I gave my consent for you to send the mss of the Kindergarten Chats to Mr. Loos: and still you have no actually definite word as to its receipt or its publication (possible or probable).

Conditions in France, too, are very disturbing at present. I have not seen anyone lately who has recently returned from Paris. I am therefore at sea concerning the actual activities of the people aside from politics.

I should like very much to talk the matter over with you, when you have the opportunity: for a matter of fact the situation is a bit hazy. Meanwhile, if you have any further information kindly drop me a line.

I am well aware that the cultivated Frenchman is very broadminded in all matters relating to art and culture, but still I must confess a bit of astonishment that at present Parisians should commission a Viennese to design their buildings. It is all extremely interesting, but needs further elucidation.

Sincerely yours,
Louis H. Sullivan

Nothing more was heard of the proposed school and apparently no arrangement could be made with Viennese publishers to bring out the book, for the manuscript was sent late in 1920 from Vienna to Langenscheidtsche Buchdruckerei in Berlin-Schönberg.

Two letters written by Richard Neutra to Schindler refer to the manuscript. In the first, dated 15 November 1920, Neutra wrote:

In order to report [on the manuscript] I visited Loos, where I made the casual acquaintance of his third wife, a dancer. I think you judge him correctly. He wants to get acquainted with the Quakers through me. But they are so busy that I am afraid I cannot help him. Besides, it may be possible that he is not being sincere with me and wants to take more advantage of them than he said. Curiously, he told me that he intends only to request them to adopt oatmeal as the mainstay of the American family table for moral and youthful health. I believe he wants something more.

Neutra wrote again on Christmas day, 1920:

Loos could not use the Sullivan manuscript. I tried to get the Quakers interested in it without success. I have made inquiries here myself and find that no publishers want to induce a printer to make a bid. To date, I know no one who would take *The Chats* in English. If you know Sullivan and should see him again, please give him my most respectful greetings. I shall leave nothing undone. Do you know to whom the manuscript has been sent? The whole matter is very problematical.

This letter reached Schindler in Los Angeles, where he went in December 1920 to oversee construction on Wright's Barnsdall House. The following letter from Sullivan was sent to Schindler in Los Angeles:

THE CLIFF DWELLERS
CHICAGO

2/22/21

My dear Mr. Schindler,

Your letter of Jan. 24th came duly to hand, but a grippy cold put me so completely out of commission that I had to let all personal correspondence go by the board.

I can fancy you had quite a time getting settled in Los Angeles, and I would like to know if Mr. Wright is still there or in Japan. Your letter does not state.

As to publication: Seymour, so far as I know has no facilities for distribution, and I think Mitchell Kennerley is out of the question because his interests are centered in the Anderson Galleries.

I do not wish to discourage you, but I believe the present conditions are not right. A state of depression has settled over the entire country. A year ago architects and draftsmen were flush—now they feel poor with good reason.

I am glad you know where the mss of the Kindergarten Chats is and wish you would get it back. I don't believe there is any chance of doing anything with it in Berlin—or anywhere else in Europe. I wrote to Loos four or five months ago and have had no answer. This gross incivility irritates me and I conclude that he is no good.

I trust you are very well and I shall be glad, as always to hear from you at any time. My kindest remembrances also for Miss Gibling.[1]

Sincerely,
Louis H. Sullivan

1. Mrs. Schindler.

THE CLIFF DWELLERS
CHICAGO

3/16/21

Dear Mr. Schindler,

I am much interested in your letter of the 10th Inst., which has just reached me. The size of the book 5″×8″ is all right but 240 pages does not seem enough unless there are not over 72000 words in the mss.

The manufacturing price seems attractive if duties and transportation ch'gs are not too heavy: and then there is the everlasting muddle of conditions over there that has to be considered. There is a bookseller on Michigan Ave. named Kroch of whom you doubtless know. I take it he must have German connections. I believe I will drop in and have a general talk with the manager, for there must be a market channel for the work if it is published.

If you will send me a copy of the original bid with the name and location of the firm making it it might be used to get definite advice from Kroch. No one here that I know has any definite knowledge of conditions involved in doing business with Germany. Let me hear from you soon.

Very truly
Louis H. Sullivan

P.S. You have not yet answered my inquiry as to whether Mr. Wright is in the U. S. or in Japan. I have not heard a word from him or about him since last fall.

LHS

THE CLIFF DWELLERS
CHICAGO

Mar. 21st, 1921

My dear Mr. Schindler,

It was a great pleasure to receive your recent letter and to know that you had had a real vacation in the wilds.

As you speak of going to work again, I suppose you mean the partly completed 'big project'.[2] I should like to know all about it, and I am awaiting the photographs you promised me.

I am greatly pleased to know that you have started my manuscript on the way back.[3] I suppose the reason your bank sent a cheque instead of wiring was that they wished the use of the money for four days. The architectural situation here, resembles a corpse: it is becoming terrifying. There may be a future, but there is no present. I have not had a word from Frank since he left here. I suppose he is pretty closely occupied finishing up the hotel. If you have any information, please let me know.

I congratulate you on having work to do. Enforced idleness is a nerve killer. Kindest to both of you.

Sincerely,
Louis H. Sullivan

2. Barnsdall House.

3. Apparently the Berlin publishing house neglected to send back the manuscript as directed, for much to Schindler's embarrassment a year and a half passed before it was returned.

Chicago, Aug. 30th, 1921

Dear Mr. Schindler,

I cabled to Mr. Wright on the 19th and up to date I have no reply. I have been assured by the cable office here that the message was delivered (at least to the Hotel Imperial) within 24 hours of sending from Chicago.

Not having had much experience in cable matters I wired you for information and recd your reply 'delay usual': and there I suppose the matter must rest as I can't afford to do any more cabling.

As to my manuscript I have concluded to have it returned to me. I am returning the publisher's letter so that you can give me the exact name and address of the party now holding the manuscript. It is necessary to be accurate. Trust all is well with you and yours: I will welcome a letter.

Very sincerely,
Louis H. Sullivan

Chicago, Sept. 8th, 1921

My dear Mr. Schindler,

I recd by phone at my office this morning your night wire as follows: 'Authorized by Wright to send you $200. Will send as soon as money available 10 days at most.'

This came as a most agreeable surprise as I had not heard from Mr. Wright since sending my cable Aug. 19th. I am quoting your message as a matter of verification, and will acknowledge its receipt immediately by night wire.

This has been a terrible summer to get through. The architects are doing nothing, and in my particular case it has been delay, delay, delay of work I expected to have authorized promptly. If this thing keeps up lots of us will be crippled.

I trust your work is going along well, and I send kindest remembrance and regards to yourself and the 'missus'.

Sincerely,
Louis H. Sullivan

1701 PRAIRIE AVENUE

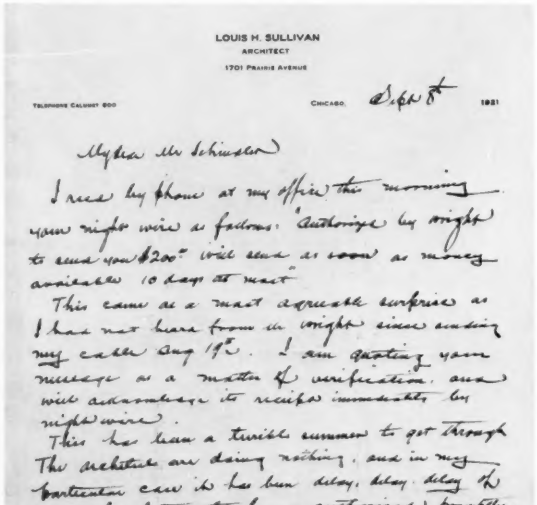
Chicago, Sept. 8th, 1921[4]

Mr. R. M. Schindler
522 Homer Laughlin Bldg.
Los Angeles, Calif.

Dear Mr. Schindler,

In view of the unpleasant fact that every day counts critically now, I suggest and urge that when the money becomes available you have it transmitted to me *by wire.* This will save four days time. I keep my account here at the *Corn Exchange Natl Bank.* The money can be wired to my bank with instructions to place it to the credit of my account. The cashier of your bank will attend to the technical details, and I will refund any expenses that may be incurred immediately upon notice from you. Should you have further occasion to wire me please address care this club. Your last wire was rec'd by the porter (at 1701 Prairie) *by telephone* at 730 in the morning.

Sincerely
Louis H. Sullivan



LOUIS H. SULLIVAN
ARCHITECT
1701 PRAIRIE AVENUE

TELEPHONE CALUMET 800 — CHICAGO, Sept 8th 1921

My dear Mr Schindler

I recd by phone at my office this morning your night wire as follows: 'Authorized by Wright to send you $200. Will send as soon as money available 10 days at most.'

This came as a most agreeable surprise as I had not heard from Mr Wright since sending my cable Aug 19th. I am quoting your message as a matter of verification, and will acknowledge its receipt immediately by night wire.

This has been a terrible summer to get through. The architects are doing nothing, and in my particular case it has been delay, delay, delay of work I expected to have authorized promptly. If this thing keeps up lots of us will be crippled.

I trust your work is going along well, and I send kindest remembrance and regards to yourself and the 'missus'.

Sincerely

Louis H. Sullivan

1701 PRAIRIE AVENUE

Chicago, Sept. 20th, 1921

Dear Mr. Schindler:

Your letter of the 13th reached me yesterday. I am sorry to say it came as a shock, as it leaves the matter so much in the air. I did not know that the sending of funds depends on a building adjustment. I therefore appreciate to the full the strain on your own nerves, and that mine is in sequence. I hope indeed that since the date of your letter you have made substantial progress, and will eagerly await further news from you. Since writing you I have taken in a small piece of work that I can turn out in few days.[5] The proceeds will help some, but not much—the rat holes are multiplying. I learn with regret that you,

4. The second of two letters written on the same day.

5. The façade for Krause Music Store, Chicago.

also, are financially embarrassed.[6] At your leisure kindly send me the correct name and exact address of the party in Berlin who now holds my manuscript as I am anxious to get it back. I am gratified to learn that the buildings[7] have turned out successfully, and will be pleased to receive the photographs. I don't doubt that you need a vacation. I have not had one in 5 years and feel the effect.

Sincerely,
Louis H. Sullivan

1701 PRAIRIE AVENUE

Chicago, Sept. 27th, 1921

Mr. R. M. Schindler
522 Homer Laughlin Bldg.
Los Angeles, Calif.
Dear Mr. Schindler,

Just before 2 oclock today my bank notified me that it had rec'd a cheque in the sum of $200.00 from a Los Angeles bank, to be placed to the credit of my a/c. The Los A. bank had wired my bank four days prior that the cheque was on the way by mail!

I wish to thank you most sincerely for your kindness in my behalf. You brought matters to a head earlier than I thought probable according to your latest letter. I heartily appreciate your conscientiousness. I hope the work has been successfully completed. I am awaiting the photographs. Please let me know how much of the entire project has been carried into execution. Do you know how Frank if getting on in Japan. He is no letter-writer so I don't expect to hear from him direct. I am writing to him by this mail: I simply can't afford to cable. Hope you will have a restful and pleasant vacation! Would like to keep in touch with you. Kindest to you both.

Sincerely,
Louis H. Sullivan

1701 PRAIRIE AVENUE

Chicago, Oct. 8th, 1921

Dear Mr. Schindler,

I am very anxious to get possession of my manuscript of the Kindergarten Chats which has been out of my house now for 18 months. You can readily see that it would cost about $150.00 to have a copy made to replace it, and I have now only one original.

Now will you undertake to get this mss back into your own hands, or give me specific directions how to get it back into my hands. I quite appreciate the fact that you have been very busy, but perhaps now you are having a period of relief. I will value an early word from you.

With kindest wishes for yourself and the good wife, and the hope that you will thoroughly enjoy your vacation I am sincerely

Louis H. Sullivan

THE CLIFF DWELLERS
CHICAGO

July 18th, 1922

My dear Mr. Schindler,

Will you kindly return to me the copy of my 'Kindergarten Chats' which you have. I am enclosing a dollar bill, which, I believe will cover first class postage. Please address it to me care this club. Will make good any difference in postage.

Some weeks since I rec'd from you a blue print purporting to be the plan of a dwelling.[8] But as no letter came with it I was unable to make it out.

Am I to understand that you are now in independent business. I am mailing this to the old address trusting it will reach you O.K.

With the exception of a newspaper rec'd a few weeks ago, I have heard nothing directly from Frank Wright since he left here last summer. I should like to know how he is getting along: and I should also like to know how you are getting along.

I shall be pleased to have a letter from you at any time. Is it your intention to remain in California?

With kindest personal regards for you both.

I am sincerely,
Louis H. Sullivan

P.S. What about the photographs you were going to send me?

P.S. I noticed also an address: 835 Kings Road. What does this mean?

1701 PRAIRIE AVENUE

Chicago, Aug. 12th, 1922

My dear Schindler,

I am glad to have news of you, and to learn your correct address. It must be very charming to have a house of your own. I suppose when Frank Wright returns he will spend some time in Los Angeles before appearing in Chicago. I expect to be away the early part of September. I am steadily at work on my autobiography which is appearing in the 'Journal of the Am. Inst. of Architects', and am nearing the end of a set of drawings I am making for the Burnham

6. Schindler's salary was paid irregularly by Wright.

7. The Barnsdall House and one for the director of proposed craft shops.

8. The plans for Schindler's office and residence at 835 Kings Road, West Hollywood, which were drawn in 1921. After Wright's return from Japan, Schindler opened his own practice in Los Angeles.

Library of Architecture as a historical document. I, personally, need the manuscript of the Kindergarten Chats, and will thank you to put it in transit immediately.[9] We are having very fine summer weather.

Kindest regards to both.

Cordially,
Louis H. Sullivan

9. *Kindergarten Chats* was first published serially in the *Interstate Architect & Builder* (Cleveland, Ohio) from 8 February 1901 to 16 February 1902. The manuscript was revised by Sullivan from June to October 1918. It was edited and published with a foreword by Claude F. Bragdon in 1934 by Scarab Fraternity Press, limited edition. In 1947, Wittenborn, Schultz, Inc., New York, published *Kindergarten Chats and Other Writings* from Sullivan's 1918 revision. The source for this information is Appendix E, Wittenborn edition, collated by Isabella Athey.

THE CLIFF DWELLERS
CHICAGO

3/6/23

Dear Schindler,

Your interesting letter of Feb. 28th at hand, thanks for Frank Wrights address: it's receipt has enabled me to write him a couple of important letters.

Glad you like the Tribune 'Critique'. It has produced a sensation: and the issue is sold out.

You ask me why I don't write more? from which I take it you have not been following my 'Autobiography of an Idea'—ten chapters of which have already appeared serially in 'The Journal of the Am. Inst. of Architects', which issues monthly. I have also written something on the Imperial Hotel. Good luck to you in spite of difficulties. Kindest to the Missus.

Sincerely,
Louis H. Sullivan

Samuel Thomson and the Old Custom House

LOUIS TORRES National Park Service

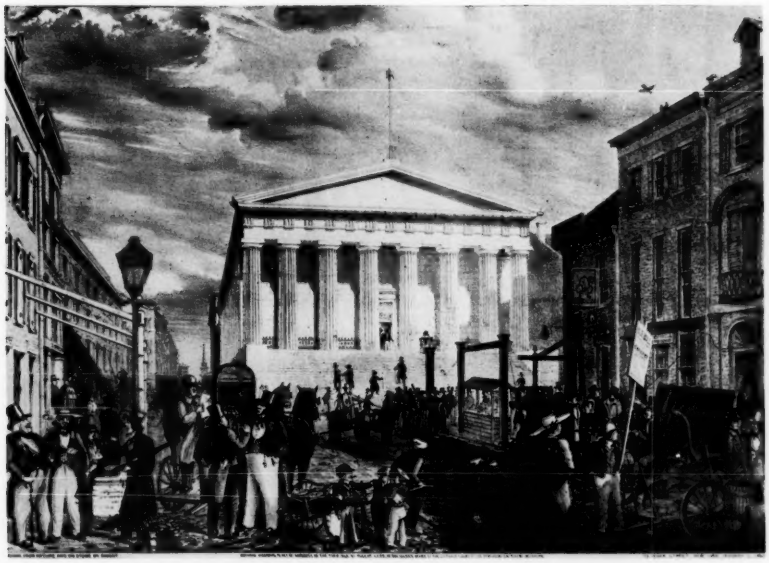


Fig. 1. The Old Custom House, Wall Street, New York, view by Robert Kerr, 1845.

THE authorship of the Old Custom House, later the Sub-Treasury, at the corner of Wall and Nassau streets has been a great mystery to lovers of this magnificent Greek-like temple (fig. 1).[1] There were at least four architects who shared, at one time or another, in the making of designs for the Custom House. Three have been positively identified, for the evidence is abundant, but the fourth has for a long time eluded the architectural historian. Yet it was probably this one man who did more to create the general plan of the building as it exists today than any of the others.

1. This building was absorbed by the National Park Service in 1939 and later redesignated Federal Hall National Memorial in honor of Federal Hall, first capitol of the United States under the Constitution, which stood on the same site.

Ithiel Town and Alexander Jackson Davis, partners at the time, were the first architects to be associated with the building. In 1833 their plans were approved by the Secretary of the Treasury (figs. 2 and 3), and in January 1834 construction on the new Custom House got underway. It was not long, however, before the commissioners for building the Custom House began to find fault with the Town and Davis plan. There were many features about this plan which set it apart as a prime example of Greek Revival architecture. One of these features was the introduction of a Roman dome exposed above the pedimented porticos. The exposed dome soon became objectionable in the eyes of the commissioners, who felt that the dome could not possibly be constructed to ensure adequate safety. This was not the only objection they had to the plan. They also concluded, with some justification, that

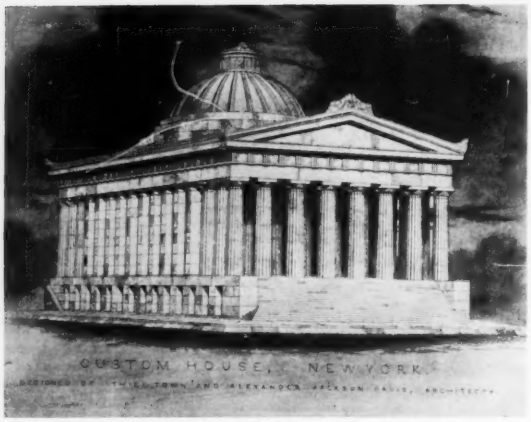


Fig. 2. Elevation, Old Custom House, by Ithiel Town and A. J. Davis (courtesy New York Historical Society).

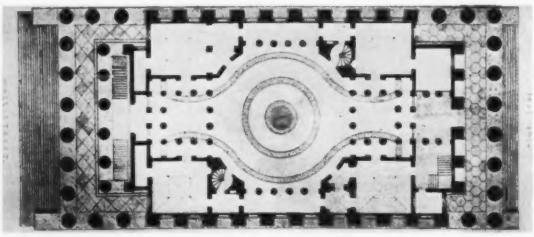


Fig. 3. Plan of principal floor, Old Custom House (courtesy New York Historical Society).

the interior design of the proposed structure was much too small to absorb the ever-growing volume of business of the custom service in New York. Soon after excavations were begun the commissioners turned elsewhere for a plan which, while retaining the general external appearance of the Town and Davis plan, would exclude the exposed dome and provide more space in the interior.

Before the alterations to the plan were accomplished and soon after the Town and Davis plan had won the premium prize, Samuel Thomson, a well-known builder in New York who had recently completed the construction of Sailors' Snug Harbor in Staten Island, was appointed at the insistence of Ithiel Town, to superintend the construction of the Custom House. Thomson's role as superintendent was destined to be brief. Shortly after his appointment a considerable amount of friction arose between him and the commissioners. The crux of this antagonism lay in Thomson's duties and, more important, in his salary. Thomson's compensation had originally been fixed by the Secretary of the Treasury. His duties and responsibilities, apparently, were sizable in scope. According to him, he procured the material, paid for it, paid the workers, and, in general, supervised all the construction. He was aided by his son William A. Thomson, who though not an architect was a 'practical mechanic'.[2]

As time went by the commissioners assumed more and more of the vital functions which Thomson had long felt were within his realm. The matter of reallocating duties would probably not have irritated Thomson too much had not his compensation also been reduced.[3] When Thomson learned that his compensation was to be reduced, he was chagrined and bitterly denounced the commissioners as 'incompetent judges' in those duties which he alone should perform. Moreover, he insisted that there was no substantial change in his duties to merit a smaller compensation, and pointed to his role in the drawing of plans as indicative of the magnitude of his responsibilities.

The conflict between Thomson and the commissioners was permitted to grow worse until finally in April 1835 Thomson resigned, receiving his compensation at the reduced rate of $3,000.[4] In a fit of rage Thomson removed the plans and drawings, presumably all those which he and his son had drawn, from the commissioners' office, thus leaving the commissioners without a superintendent and, what was worse, without plans with which to continue the work.[5]

After an unsuccessful attempt to get Thomson's son William to assume the job of superintendent, the commissioners appointed John Frazee 'Architect and Superintendent' on 22 July 1835.[6] Frazee was the last architect to be associated with the construction of the Custom House, remaining on the job until the building's completion in 1842. Frazee was responsible for many noteworthy changes in the plan, particularly as they affected the details and

2. Letter of Commissioners to Woodbury, 17 July 1834, and letter of Thomson to Woodbury, 14 August 1834, from Letters received by the Secretary of the Treasury from Collector of Customs: Letters relating to the New York Custom House Building, 1832–1846, National Archives, Record Group 56 (hereafter cited as Letters, Sec.-Treas.).

3. Letter of Commissioners to Woodbury, 17 July 1834, and letter of Thomson to Woodbury, 14 August 1834, from Letters, Sec.-Treas.

4. Voucher No. 151, from Records of the U. S. General Accounting Office: First Auditor's Accounts, National Archives, Record Group 217; the letter of Thomson to President, 28 May 1835, is Thomson's official resignation, but the letter of Bowne to Woodbury, 16 April 1835, implies that Thomson had resigned some time before, since it refers to him as the 'late superintendent'. From Letters, Sec.-Treas.

5. Letter of Bowne to Woodbury, 16 April 1835, from Letters, Sec.-Treas.

6. Letter of Bowne to Woodbury, 25 July 1835, from Letters, Sec.-Treas. 'Lydia Frazee, Administratrix of John Frazee vs. The United States', *Reports from The Court of Claims, submitted to the House of Representatives during The First Session of the Thirty-Sixth Congress*, 1859–1860, Vol. II, Report No. 216, pp. 10–13.

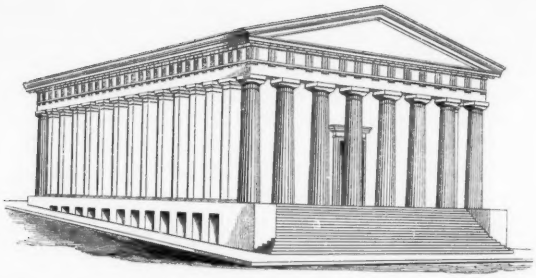


Fig. 4. Elevation, revised design, Old Custom House, from article by William Ross (from *The Architectural Magazine*, December 1835).

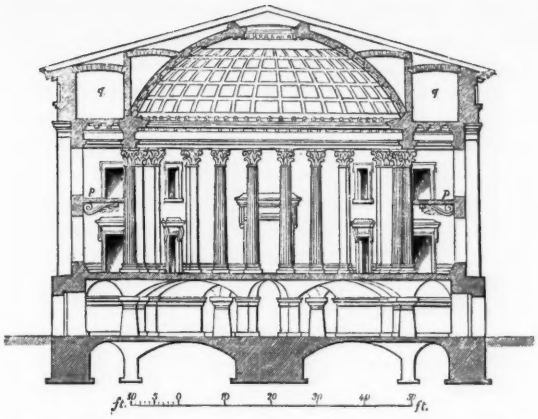


Fig. 6. Section, revised design, Old Custom House, from article by William Ross (from *The Architectural Magazine*, December 1835).

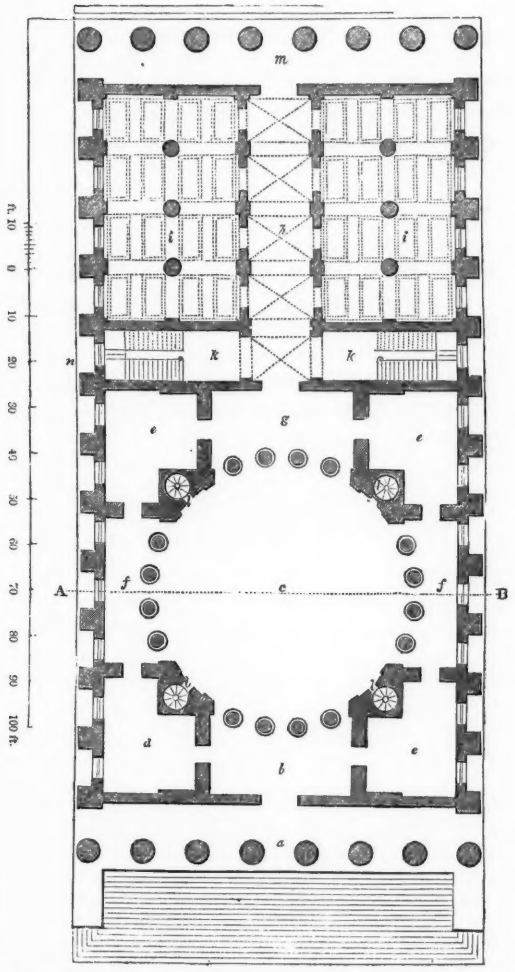


Fig. 5. Plan of principal floor, revised design, Old Custom House, from article by William Ross (from *The Architectural Magazine*, December 1835).

beauty of the interior, but the modification and alteration of the original Town and Davis plan has remained a mystery. The problem cannot be easily solved, but the many sources which touch upon the subject leave room for speculation.

The Town and Davis plan was probably altered during the first half of 1834. Largely supporting this view is a letter written by the commissioners to the Secretary of the Treasury in which it is stated that they and the superintendent, which presumably meant Thomson, went to Washington in May 1834 '. . . with the view of obtaining the [assent] of your immediate predecessor [Secretary Taney] to some alteration of the plans whereby the accommodations would be greatly increased and more than half a million of dollars saved in the execution. Our suggestions were readily assented to by Mr. Taney. . . .'[7]

The records indicate that there were at least two persons who may have had a hand in modifying the original plan of the Custom House. These were Samuel Thomson, the superintendent, and William Ross, an Englishman. Ross is credited with writing an article in *The Architectural Magazine* (London) in which he describes his role in the changes made in the original plan of the Custom House (figs. 4–6).[8] Since this article contains the only de-

7. Letter of Commissioners to Woodbury, 5 August 1834, from Letters, Sec.-Treas. In support of this account there is a receipt for $127.42 signed by Samuel Thomson, dated 21 May 1834, in which expenses incurred by Thomson and the commissioners for going to Washington 'on business of the new Custom House' are verified. See receipt of S. Thomson, 21 May 1834, from Mercantile Papers, 1792–1874: Custom House Papers (Miscellaneous Documents), The New York Public Library.

8. William Ross, 'Plan, Elevation, Section etc., with a descriptive Account of the Improvements lately made at the Custom-House, New York', *The Architectural Magazine* II (December 1835), 531.

scription of the modified plan, later writers have been quick to assume that Ross was the architect who made the changes to the Town and Davis plan. Thus Talbot Hamlin, in his well-known work on Greek Revival architecture, stated that 'The Commissioners in charge of the work were perhaps rightly frightened at the lightness of the construction indicated on the Town and Davis plan, and they employed William Ross, an English architect visiting in New York, to restudy the interior.'[9] Roger Hale Newton, in his work on Town and Davis, reached the same conclusion.[10] These authors were impressed by Ross's article, for was not Ross's plan substantially the same as the existing building? Their mistake was, however, that they did not consult the records in the National Archives.[11]

Ross is first heard of in the April 1834 issue of *The Architectural Magazine*. In that issue the following brief item appears:

> Mr. Ross of Bristol, who furnished several designs for our *Encyclopaedia of Architecture*, and who acquired very considerable public approbation by a course of lectures on architecture in Bristol, is gone to settle at New York, and has promised to become our correspondent there.[12]

In reading this article one is compelled to conclude two things: first, the editors of the magazine must have recognized Ross as an authority in his field; second, judging from the timeliness of the article, the magazine being a monthly, Ross probably arrived in America not much earlier than March 1834.

It is not until the year 1835 that we hear more of Ross. The November 1835 issue of *The Architectural Magazine* contained an article written by Ross in December 1834, while still in America, in which we derive some hint of his impressions of the use of Greek Revival architecture in New York City. Thus he says that 'The Greek mania here is at its height, as you infer from the fact that everything is a Greek temple from the privies in the back court, through the various grades of prison, theatre, church, custom-house, and state-house.'[13] Ross then wrote another article in February 1835 which appeared in the July 1835 issue of *The Architectural Magazine*. This article discussed the distribution of premiums for architectural drawings submitted in contests in all of England. This item was signed *'Wm. Ross, architect, late of Bristol, but now of New York, U. S. February 23, 1835'*.[14] It should be noted that these two items were both written and published before his famous article on the Custom House. The only other article that mentions Ross's name is one which appeared in the July 1836 issue of *The Architectural Magazine*, six months after his opus on the Custom House was published. This brief item states that '*A Building for a Lyceum of Natural History* has been commenced at New York, of which plans, sections, elevations, and a specification have been sent us by our correspondent, Mr. Ross; and they probably will appear in some future number.'[15]

Some conclusions can be drawn from the four articles just mentioned: first, an English architect William Ross was in New York in 1834–1835, and at least through part of 1836; second, Ross was the New York correspondent, and therefore representative of, *The Architectural Magazine*; third, the proposed Custom House, designed to be built on the order of a Greek temple, had not escaped his attention; and fourth, Ross was undoubtedly in the habit of sending architectural plans of various buildings in New York to London for publication in *The Architectural Magazine*. It is indeed strange that despite the several references to Ross in these articles so little is known of the man, of either his life or his works, in America and England. The only other early reference to his work appeared in 1833 in *An Encyclopaedia of Cottage, Farm, and Villa Architecture and Furniture*. In this book were published plans designed by Ross for the construction of farmhouses, inns, and alehouses.[16] This work is apparently the same *Encyclopaedia of Architecture* cited in the April 1834 issue of *The Architectural Magazine*.

What is perhaps even more puzzling is that no mention is made of Ross in the voluminous manuscripts pertaining to the Custom House existing in the National Archives and in other repositories. Nevertheless, Ross did reside in New York City for a time. He not only appears for the first time in Longworth's directory for 1835 but also in succeeding annuals, in fact, as late as 1839. After this year his name no longer appears. A summary of these listings follows exactly as printed in each annual:[17]

9. Talbot Hamlin, *Greek Revival Architecture in America* (London, 1944), pp. 154–156.

10. Roger Hale Newton, *Town and Davis, Architects* (New York, 1942), pp. 171.

11. Some weight can be given to their conclusion, because there is available an early account of the Custom House which says that after some dissatisfaction was found with the Town and Davis plan 'Mr. Ross, an architect, was then employed to design after the Parthenon a new plan, which was adopted.' See Rev. B. G. Noble (ed.), *Nichols' Illustrated New York, A Series of Views of the Empire City and Its Environs*, p. 16.

12. *The Architectural Magazine* I, 90.

13. William Ross, 'Street Houses of the City of New York', *The Architectural Magazine* II (November 1835), 490–493.

14. *The Architectural Magazine* II (July 1835), 329.

15. *The Architectural Magazine* III (July 1836), 325.

16. John Claudius Loudon (ed.), *An Encyclopaedia of Cottage, Farm, and Villa Architecture and Furniture; containing Numerous Designs for dwellings . . .* (London, 1833). There were several later editions. H. M. Colvin, *A Biographical Dictionary of English Architects 1660–1840* (London, 1954), p. 515, is the first modern reference to mention Ross, and this is so only because of the article which appeared in Loudon's *Encyclopaedia*. In fact, Colvin is not even aware that Ross also appeared in *The Architectural Magazine*.

17. [Thomas Longworth], *American Almanac, New York Register, and City Directory* (New York: Thomas Longworth, 1835 through 1840).

1835—'Ross William, Architect 44 Nassau'
1836—'Ross William, architect 174 Broadway h. 562 Greenwich'
1837—'Ross William, architect 1 New h. 6 East-Clinton-pl.'
1838—'Ross William, Architect 14 Pine'
1839—'Ross William, architect 26 Wall'

A few observations can be drawn from these directory listings. The year (1835) in which Ross first appears in the directory is the year following that one (1834) in which he is said to have come to America. He did not appear in the 1834 listing because the directory had already been published before he came to America. He is listed as 'architect' in all five annuals. What might strike one as being rather odd is his address. In every instance he lived in the vicinity of the Custom House site, and on at least two occasions he was a next-door neighbor. He must have had more than a passing interest in the new structure, and he must have been known to some of the officials in charge of building the Custom House.

We will now turn to Samuel Thomson. Long before his appointment as superintendent, Thomson had come to the attention of Samuel Swartwout, Collector of Customs in New York, and the Department of the Treasury with the highest of recommendation. We find many letters written as early as 1832 recommending that he be appointed builder or architect of the new Custom House.[18] Nevertheless, it was not until January 1834, after the Town and Davis plan had been adopted, that Thomson received his appointment as superintendent.[19]

Thomson was held in very high esteem in his profession. A native of Taneytown in Frederick County, Maryland, Thomson later established residence in New York City where for some twenty-five years before his appointment to the Custom House he carried on an extensive business as architect and builder.[20] Some letters refer to him as 'architect-builder', and other letters, as 'mechanic', in spite of the fact that Thomson preferred to call himself 'architect and builder'. Longworth's directory had Thomson listed as 'builder'.[21] Several letters refer to him as owning a considerable amount of property. There is evidence that both he and his son operated a lumber yard in the city to which the new Custom House later resorted for lumber even after Thomson had resigned his position. Even the directory refers to his place of business as a 'Lumber' house.[22] In 1819 Samuel Thomson became a member of the General Society of Mechanics and Tradesmen of New York City.[23]

Although in his day Thomson must have been well known among his associates and colleagues, he did not leave much of an imprint on architecture. The reason may be that his greatest abilities were as builder rather than as architect. Hamlin's work is the only later study to mention Thomson, and in this case he refers to him as the builder (not architect) of Sailors' Snug Harbor.[24] Thomson's role in building Sailors' Snug Harbor is reported not only by himself but by a contemporary as well.[25]

Having learned a little about Thomson's background, it remains to show what role he played in the alteration of the original plan, if in fact he did. In order to do this, however, we must resort to the voluminous manuscript collections in the National Archives and in other repositories. Neither Hamlin nor Newton make any reference to Thomson's role in the Custom House. For them, the man who altered the plan was William Ross.[26] Manuscripts leave little doubt as to the role played by Thomson, albeit they are sometimes vague and incomplete. In a letter written by Thomson to the Secretary of the Treasury the former says,

> Upon entering . . . my duties as Superintendent in January last 1834, with the aid of my son, I commenced drawing the plans so as to have them work together with accuracy after the plans of Mr. Town—these plans were then all laid aside by the advice of the Commissioners and new plans were requested to be drawn by us (Similar to those drawn & presented by me to the Department and unfortunately destroyed by the fire) for all the different floors & elevation which was considered to be more suitable for the purpose for which it was to be occupied—this arrangement was desired by myself & so also considered by the Commissioners as a saving to the Government of at least half a million of dollars.[27]

Another letter written by Thomson to the Secretary repeats essentially the same points:

> When you reflect that I have had first to draw plans of the 1st and 2nd stories according to the plan presented by Mr. Town and adopted by the Department and furnish specifications for materials according to this plan, and to do so in three different ways to gratify

18. For example, letters numbered 23 through 53, from Letters, Sec.-Treas.

19. Letter of Thomson to Woodbury, 14 August 1834, from Letters, Sec.-Treas.

20. Letter of Campbell P. White to Taney, 27 September 1833, and letter of Thomson to Woodbury, 2 September 1834, from Letters, Sec.-Treas.

21. Longworth, *Directory*, 1829 through 1841.

22. Longworth, *Directory*, 1830 through 1837.

23. Thomas Earle and Charles T. Congdon (eds.), *Annals of the General Society of Mechanics and Tradesmen of the City of New York, from 1785 to 1880* (New York: The Society, 1882), p. 398.

24. Hamlin's information was obtained from a descendant of Martin E. Thompson, architect of Sailors' Snug Harbor. See Hamlin, *Greek Revival*, p. 136.

25. Letter of Thomson to Woodbury, 11 September 1834, and letter of R. Riker to McLane, 1 December 1832, from Letters, Sec.-Treas.

26. There are only two contemporary accounts which refer to Thomson's association with the Custom House: *New York Mirror*, 23 August 1834, which refers to him as the superintendent; and Noble, *Nichols' Illustrated New York*, p. 16, which goes one step further by including Thomson among the officials (superintendent) who rejected the original plan.

27. Letter of Thomson to Woodbury, 14 August 1834, from Letters, Sec.-Treas.

one of the commissioners—a business occupying several weeks of assiduous attention and labor. When you reflect that the first plan of the building was abandoned as being too expensive and that I then drew plans (similar to those presented by me to the Department and unfortunately destroyed by fire) for all the floors & elevations. . . .[28]

It should be recalled that in May 1834 the commissioners and Thomson went to Washington with what they claimed to be their ideas for altering the original plan. It should also be remembered that as a result of this visit the Secretary approved the changes made to the plan.[29] No mention is made of any other person, architect or otherwise, having gone to Washington with them. True, the commissioners did not name the individual who actually was responsible for the changes, but judging from the frequency with which Thomson recited his part in the changes, it would seem that if he had not been the author, the commissioners or Secretary would, at one time or another, have denied this. Despite Ross's article and the fact that the revised plan attributed to Thomson has never been found, the preponderance of evidence seems to weigh in favor of Thomson as the author of the changes to the Town and Davis plan.

Nevertheless, Ross cannot be entirely ruled out as the possible author of the changes, for this article, as the only evidence we have of the modified plan, establishes a *prima facie* case not easily rejected. Moreover, there are several possibilities that should be considered before Ross can be eliminated, for despite the absence of evidence to the contrary, he still might have been consulted by the commissioners, the Secretary, the Collector, or by even Thomson himself. As to the last possibility, it may be of interest to note that in one of Thomson's letters to the Secretary, in which he summarizes his numerous functions, he says, 'In this duty I expected to be assisted by my son Wm. A. Thomson who is a practical mechanic & an architect . . . & also by such other architects as I should from time to time have occasion for.'[30] However, if Thomson had permitted himself to call upon other architects, it is unlikely that he consulted with Ross prior to May 1834 when the altered plan was first approved, since Ross had only recently arrived in New York, perhaps no earlier than March.

Ross could have been hired by the commissioners, as he himself has said, but this seems doubtful. Ross was never mentioned in correspondence, and if he had been hired, his name would have appeared somewhere in the manuscripts. If he had been hired by the Secretary, some mention of this would certainly have been made, particularly in connection with his pay, on some receipt or voucher. No such document has been found. It seems unlikely that between the time when Ross first arrived in New York and the time that the plan was approved, at the most a brief interval of three months, Thomson, the commissioners, or the Secretary had gotten in touch with Ross, had him study the old plan and draw up a new one, and finally had it approved.

It has been suggested that possibly there was no such person as William Ross; that Ross was actually Samuel Thomson using a pseudonym. This conclusion might sound plausible if the evidence did not indicate otherwise. Longworth's directory clearly shows that a William Ross, an architect, did reside in New York City from 1835 through 1839, and the numerous articles either referring or attributed to him in *The Architectural Magazine* seem to support this conclusion. Moreover, references to Ross in *An Encyclopaedia of Cottage, Farm, and Villa Architecture* leave little doubt that this was the same Ross whose name appeared so often in *The Architectural Magazine*. After weighing all this evidence, the conclusion must be that William Ross and Samuel Thomson were two different persons.

If Ross did exist and Thomson was the real author of the revised plan, what explanation can be given for Ross's possession of the plan? Why did Ross assume the authorship of the plan? At this point we can only conjecture. It cannot be too unreasonable to suggest that in Thomson's deep anger at the commissioners, resulting in his resignation, he took the plan and drawings and sold them to Ross, who, as a correspondent for a foreign magazine, willingly accepted them. To say that Ross unscrupulously assumed authorship of the plan is not to do him an injustice. Plagiarism was not an unknown practice among architects in those days.

28. Letter of Thomson to Woodbury, 25 August 1834, from Letters, Sec.-Treas.

29. Letter of Commissioners to Woodbury, 5 August 1834, from Letters, Sec.-Treas.

30. Letter of Thomson to Woodbury, 14 August 1834, from Letters, Sec.-Treas.

AMERICAN NOTES

'A Return to Solid and Classical Principles', Arthur D. Gilman, 1859

GEORGE L. WRENN

For years we have wondered about the great church at Arlington and Boylston streets, Boston. Its walls of brownstone and its eighteenth-century style are historically a surprising combination. When we read what its designer said, it seems to have been a harbinger of the Colonial Revival.

At the suggestion of John Coolidge of the Fogg Museum, Mr. Wrenn collected material for an essay on the church's architect, Arthur D. Gilman. He found an illuminating explanation in a Boston newspaper for 6 December 1861, of which a large part is quoted here.

Since graduation from the Harvard Graduate School of Design in 1960, Mr. Wrenn has been working as a restorationist with the National Park Service in Philadelphia. —Editor

The Arlington Street Church was one of the first buildings to be built in Boston's newly filled Back Bay area (figs. 1–3).[1] It was erected in 1859–1861 on the northwest corner of Boylston and Arlington streets, opposite the Public Garden. Building on filled land was not new in Boston but the size of the building and, especially, the weight of the church tower created somewhat unusual problems. It was reported by the Building Committee that after the piles were driven 'the interstices were then rammed in with concrete and cement, so as to form a solid bed' upon which granite blocks were laid, each block rest-

Fig. 1. Arlington Street Church, Boston, ca. 1862 (courtesy Society for the Preservation of New England Antiquities).

1. A renewal of interest in the architecture of the Back Bay is reflected in recent studies; for example, Bainbridge Bunting, *The Architectural History of the Back Bay Area in Boston* (unpublished, Harvard Ph.D. dissertation, 1952); Bunting, 'The Plan of the Back Bay Area in Boston', *JSAH* XIII (May 1954), 19–24; and Diana Whitehill Laing, 'The Cushing-Endicott House: 163 Marlborough Street', *Proceedings*, The Bostonian Society (Boston, January 1960), pp. 15–52.

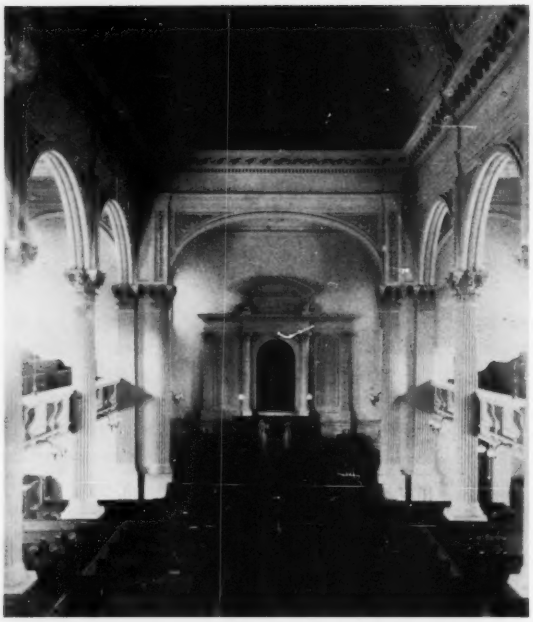


Fig. 2. Interior, Arlington Street Church, Boston, early photograph by Heywood (courtesy Bostonian Society).

ing on two piles.[2] A solid pyramid of granite blocks cemented together to form a single mass and weighing more than a thousand tons was then erected to seat the tower.

The total cost of the church was $116,482.15, considerably more than was originally allotted to the purpose. Of this $6,324.11 was for 'Miscellaneous expenses, including services of the architects and superintendent.'[3]

The following unsigned article appeared in the *Boston Evening Transcript* and was shortly thereafter reprinted in the appendix to the published account of the dedication ceremonies. In the latter Gilman was named as author.[4]

The work was commenced on the new building in the month of September, 1859. The main structure consists of a nave and aisles, measuring together sixty-five by ninety feet internally, and seventy by ninety-five on the exterior. A tower twenty-three feet square stands in the center of the front, with side entrance porches flanking it, each measuring ten feet eight inches by twenty-three feet. This tower is surmounted by a lofty spire-steeple, which rises to a height of one hundred and ninety feet, and is terminated by a finial, bearing the compass-points and vane. The material throughout the whole exterior is a durable freestone, of a rich and pleasing color, from the quarries at Newark, N. J.

The style chosen by the architects is somewhat remarkable, as presenting a return to those solid and classical principles which were characteristic of the churches of a former age, but which have not been put in practice among us, at least, in any such marked example as the present,—with the single exception of the fine Roman-Catholic Church of the Immaculate Conception,—since the period of the Revolution. It displays throughout a Roman order, as developed and practiced by the great masters of the Renaissance in Italy in the fifteenth and sixteenth centuries, and from them adopted into England and naturalized there in the works of Wren, Hawksmoor, Gibbs, Dean Aldrich, and, indeed, of most of the eminent English architects since the Reformation. How far it is adapted to the purposes of a Protestant house of worship we shall beg leave now briefly to consider.

It is true that Mr. Ruskin, and some others, who, like him, are led away by their personal feelings and individual partialities into sweeping denunciations clothed in periods of the most gorgeous rhetoric, have succeeded in persuading perhaps a majority of the readers of our day that the Byzantine and the Gothic styles are the only ones which are suitable to be employed in ecclesiastical structures. Without referring, however, in detail, to the abundant precedents existing in the glorious churches of Italy,—such, for example, as are figured with such minute and exquisite elaboration in the great work of Letarouilly, 'Edifices de Rome Modern',—we would attempt to set forth, as briefly as possible, the principles of composition, which we think render the classical styles not unworthy of comparison with those which it is the reigning fashion of the day to practice and extol.

If we look at the requisites of a Protestant congregation—such as arise out of the necessities of Protestant worship—we shall perhaps find that the Italian forms of architectural composition deserve better treatment than they have generally received at the hands of our modern architects. These requisites, it will soon become evident, are widely different from the usages and ceremonies by which the great examples of Gothic architecture were called into existence. The Gothic buildings—long, narrow, and high—were intended mainly for processions, or for imposing spectacles, where the sight only of the officiating priests at the high altar was deemed sufficient for the worshippers. The matters of seating the congregation, and for providing for their hearing sermons of instruction, were then altogether secondary considerations. We, on the other hand, require that the congregation shall be able to sit at ease through several

2. 'Report of the Building Committee', appended to *Positive Faith, A Discourse Preached at the Dedication of the Church on Arlington Street, Boston*, 11 December 1861, by Ezra S. Gannett (Boston, 1862), p. 60.

3. 'Report of the Building Committee', p. 63.

4. 'Report of the Building Committee', p. 44. Gilman was born in Newburyport, Massachusetts, on 5 November 1821. He attended Governor Dummer Academy, Byfield, Massachusetts, and then Washington (now Trinity) College at Hartford, Connecticut, where he was last enrolled in his junior year, 1839–1840. In the early 1840s he traveled in Europe and then opened an office in Boston. He came to public notice early in his career through his authorship of an article in the *North American Review* (April 1844) strongly condemning classic revival architecture. As a result of this he was asked to give a series of Lowell Lectures on Architecture in 1844–1845 and remained in demand as a professional lecturer for the rest of his life. In 1859 he became associated with Gridley J. F. Bryant in Boston and in 1866 fulfilled a long-standing ambition by moving to New York where he practiced in conjunction with various architects. The other most important buildings designed by Gilman were the Hotel Pelham, Boston (1856–1857), the Boston City Hall (1862–1865), the Equitable Life Assurance Building, New York (1868–1870 in conjunction with Edward Kendall), St. John's Episcopal Church, Clifton, Staten Island (1869–1871), and the Equitable Building, Boston (1874–1875). From the middle of the 1870s his business and health declined and he eventually retired to Syracuse, New York, where he died on 11 July 1882, after a long illness.

Fig. 3. Column capital in nave, Arlington Street Church, Boston (photo: Cervin Robinson for HABS).

hours, and both hear and see the preacher without inconvenience. And it is to the particular genius of Wren that we are more particularly indebted for the first examples of a style of church-building admirably suited to these requirements—a style which the experience and associations of nearly two hundred years have now enabled us to regard as equally church-like with the earlier and less convenient structures. In speaking of his own church of St. James, Westminster, Wren very justly remarks: 'In this church, though very broad, and the nave arched over, yet, as there are no walls of a second order (i.e., no clere-story), nor lanterns, nor buttresses, but the whole roof rests upon pillars, as do also the galleries, I think it will be found beautiful and convenient, and, as such, the cheapest form of any that I could invent.' . . .

In this style therefore,—the Roman, or perhaps, speaking more exactly, the Italian Renaissance,—and upon the same principles as those enunciated by Wren and exemplified in his practise, and that of his pupils, but without a servile adherence to any one direct example,—the architects of this church have endeavored to form their design. . . .

And we may be equally sure that the spires invented by Wren, or rather improved by him upon such structures as the Campanile of St. Mark's at Venice, of St. Giorgio Maggiore in the same city, and of the grand old bell tower of the Cathedral of Turin, will continue to be admired and imitated long after the collection of blazing fireworks ushered in by the 'Seven Lamps of Architecture' have fizzed themselves out forever.

The tower and spire of the church in Arlington Street are placed symmetrically in the centre of the principal front of the building. This is a wide departure from the practise of tacking them to one corner,—so prevalent of late years in this vicinity, that it may be said to have been 'run to death' in the new churches of Boston and its neighborhood. . . .

It is to the interior of this Church, however, that we are confident that the attention of the critical portion of the public will be most strongly directed. The interiors erected in the same general style in this country before the commencement of the present century have always been regarded as, in many respects, the best and most satisfactory churches which we could boast of up to the present time. But the more correct and elaborate works on the subject of architecture, to which the professional architects of the present day have access, should leave them without excuse, did they not strive to improve, at least in an equal degree, upon the examples left them by their predecessors. While the interior of this church, therefore, is similar in its general idea to those of King's Chapel and of the Brattle-street Church in Boston, of the much admired little church on the Cambridge Common, of St. Paul's and St. John's churches in the city of New York and of the fine old church in Providence, R. I., it will be found to surpass either of them, both in its dimension, its imposing effect, and particularly in the studied purity and richness of the great variety of its detail. . . .

The design, plans, working-drawings and specifications required for the erection of this elaborate work were furnished by Messrs. G. J. F. Bryant and Arthur Gilman, architects, and were selected as the final result of a very protracted competition, in which nearly all of the leading architects of the city participated. The plan being once adopted, no changes were subsequently made in it, as is too often the case in the design of public structures, except such as were judged by the architects to be of decided advantage,—originating with them alone, and introduced only at their urgent request. The Building Committee were Messrs. H. H. Hunnewell, George M. Barnard and James L. Little, who with great unanimity, have given their personal attention to the progress of all matters connected with the undertaking.

Thus has been successfully added a new and most striking addition to the public edifices of Boston. In the progress of modern improvement, probably not many years will elapse before it will become the centre of a populous and elegant neighborhood. Long may the mellow chimes ring out from its lofty steeple, to call a zealous and increasing congregation to the manifestations of a thoroughly liberal and philosophical Christianity.

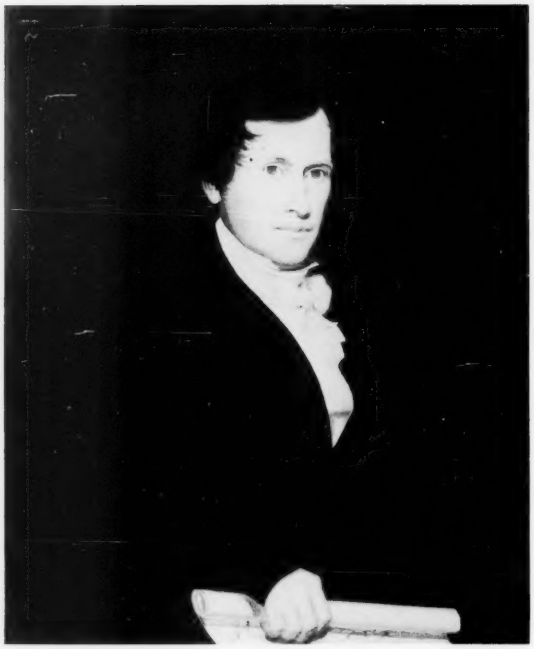
Canvass White and Natural Cement, 1818-1834

HARLEY J. MCKEE

Concrete is one of the most essential architectural materials in use today but it has had scant attention from historians. Robert W. Lesley, *History of the Portland Cement in the United States* (Chicago, 1924) is important but not architecturally oriented. Peter Collins, in *Concrete, the Vision of a New Architecture* (London, 1959) has little to say about the early development in the United States. Ada Huxtable in *Progressive Architecture* (October 1960) does much better in that respect but we have hardly gotten started.

American Notes has presented these pieces: Albert Manucy, 'Tapia or Tabby' (XI, 4, December 1952) and three by your editor 'Poured Concrete Building, 1835' (XI, 2, May 1952), 'Concrete Building Blocks in Honolulu' (XI, 3, October 1952), and 'Frear Artificial Stone, Patented 1868' (XIII, 1, March 1954).

The following essay was prepared by Professor McKee for our series, which might be called the Annals of Concrete. We hope later to have contributions on such subjects as Orson Squire Fowler's 'gravel wall houses' (1850s), the monolithic buildings in our Army's western military posts (1870s), the great concrete buildings of St. Augustine (1890s), and the grain elevators of Minneapolis (1899 and later). —Editor



Canvass White (1790–1834). Collection of the Munson-Williams-Proctor Institute, Utica, N. Y. (photo: Onondaga Historical Association).

The Erie Canal was built to connect the Great Lakes with the Hudson River, and thence Atlantic seaports; it extended from near Buffalo to near Albany. The Erie was not the first canal in the state but it was by far the most ambitious, being over 350 miles long and utilizing seventy-two locks. Its general section maintained a depth of water of four feet, twenty-eight feet wide at the bottom and forty feet at the surface; the banks were of earth. Locks were twelve feet clear in width and ninety feet long. Those of the middle section of the canal had stone walls six feet thick, on a foundation of hewn timber one foot thick, over which were laid well-jointed three-inch planks. The canal passed over a number of streams by means of wooden aqueducts supported on stone piers. 'Natural cement' was employed in the mortar of these and other stone works, particularly the portions under water.[1]

After exploratory surveys had been made by James Geddes in 1808, the New York State Legislature, on 17 April 1816, passed a bill directing the preparation of plans and estimates. A Canal Commission was established to administer the work; they divided the route into three sections, the middle one extending from Rome to the Seneca River. This middle section was surveyed and laid out by Benjamin Wright as engineer; one of his assistants was Canvass White. Formal construction began just west of Rome on 4 July 1817. Contracts were awarded for quite short sections, the contracting parties being numerous; the state also advanced money for the purchase of tools and for feeding the laborers. Excavation of the channel was done first and the construction of locks and aqueducts followed. In May 1820 the middle section was navigable; before that time transportation was difficult. Timber and stone had to be brought to the site while the ground was frozen, each winter's hauling being proportioned to the estimated needs of the following warm season. Such conditions encouraged the canal builders to use materials which could be found in the near vicinity of the works.[2]

Native American engineers surveyed and directed the construction of the Erie Canal. Judge Benjamin Wright was a lawyer who taught himself how to survey. In 1792 he had used a spirit level to lay out the Inland Canal, a short waterway near Rome, and in 1802 he directed the construction of several locks on Wood Creek; this was his preparation before being placed in charge of the middle section of the Erie Canal in 1816. He was made Chief Engineer of all New York State canals in 1817 and retained this position until 1828, acquiring a high reputation in his profession.[3]

1. *Laws of the State of New York, in relation to the Erie and Champlain Canals* (Albany, 1825), I, 198, 268 et passim.

2. *Canal Laws*, passim.

3. *Memorial of Centennial Celebration of the Turning of the First Shovelful of Earth in the Construction of the Erie Canal Held at Rome, N. Y., July 4th, 1917* (Rome, N. Y.), passim.

Canvass White was born in Whitestown, Oneida County, on 8 September 1790. His grandfather had been the first permanent settler in Whitestown, a short distance west of Utica, New York, moving there from Middletown, Connecticut, in 1784. Canvass lived on the family farm as a boy and had access to only limited common school facilities. From 1807 to 1811 he worked for a Colonel Carpenter in a village store as clerk. To improve his health he shipped as supercargo on a merchant vessel, which sailed to Russia. The ship returned by way of England, and in spite of current hostilities it was allowed to proceed to New York, arriving in September 1812. White resumed work for Carpenter for a time and then attended Fairfield Academy in central New York, studying mathematics, astronomy, chemistry, mineralogy, and surveying. He appears to have spent an academic year there, and carried his studies as far as the resources of the Academy permitted. In the spring of 1814 he raised a company of volunteers and was commissioned lieutenant in Colonel Dodge's regiment, serving with distinction in the fighting around Fort Erie. White was wounded severely by a shell, but recovered and finished out his term of enlistment. He then went to Clinton, New York, and studied with a Dr. Josiah Noyes, also engaging in an unsuccessful chemical manufacturing venture of an undetermined nature.[4] In the spring of 1816 White applied for the position of surveyor on the Erie Canal; he was engaged as one of the assistants to Benjamin Wright, on the middle section. At this time he made the acquaintance of Governor De Witt Clinton, who took an interest in the young man.

Canvass White and the other engineers appeared to recognize how limited their knowledge was. White was not satisfied with the information he could secure from the books then available, and in the autumn of 1817 he traveled to England at his own expense to learn more about canal construction, being encouraged to do so by Governor Clinton. He traversed more than 2,000 miles of English canals on foot, examining their construction, securing accurate drawings, and purchasing modern surveying equipment, which he brought back on his return in the spring of 1818.[5] In view of White's inquiring nature and his recognition of the many problems to be faced in building the Erie Canal, he must have taken every opportunity to talk to engineers about materials, construction, and design of canal works. If he was not already familiar with the limes and cements of England, and the stones or earth from which they were made, he must have inquired into the subject, because the problem of mortar for the masonry of the Erie Canal was a troublesome one.[6] The Canal Commissioners were willing to take a chance on using common lime mortar; Benjamin Wright knew from his experience on the Inland Canal in 1792 that it was unsatisfactory and had recommended the importation of Tarras or Roman cement for the Erie.[7] The Commissioners made no provision for importing cement in the budget, however. During 1818 and part of 1819 stone was laid in common lime mortar, and the mortar gave 'evidence of soon failing'.[8]

The story of the discovery of natural cement rock in the town of Sullivan appears with numerous variations; I shall base this account on reports of the Canal Commissioners,[9] and note some significant statements from other sources. A report made 25 January 1819, covering the work of the previous season, mentioned difficulty in excavating certain portions of the channel between Rome and Syracuse, where 'indurated clay'—presumably shale—, gypsum, and limestone had been encountered. Of some of this stone the report said:

> . . . we expect to make a very important use; as, by a number of small experiments, in which, after being thoroughly burnt and slaked, or ground, and mixed in equal portions with sand, it appears to form a cement that uniformly hardens under water . . . and this meagre lime-stone [is found], on sections 27, 31 and 37. . . . On the south side of the canal, the ground always rises, in most places gently, but in some abruptly. And, in these elevations, within one to eight miles of the line, are contained inexhaustable quantities of lime and sand-stone. The wants of the country have not yet required, that many quarries should be extensively opened. But, we found some of an excellent quality that had been. To such we have had reasonable resort: and we have been very fortunate in opening several new ones.

It appears that natural cement rock provided by canal excavation, as well as that quarried, were used, but I cannot say which was the first. According to Joshua Clark:

> The first works of masonry on the Erie Canal, were contracted to be done with common quicklime. Mr. Mason Harris, and Mr. [Thomas][10] Livingston, of Sullivan, Madison County, entered into a contract to furnish a quantity of this lime for the construction of culverts, aqueducts, etc., on the middle section of the canal, between Rome and Salina (later called Syracuse). They burned a large kiln and commenced the delivery of it. The purchasers, upon trial, found that it would not slack; all were greatly surprised who heard of the facts, and wondered at the singularity. The circumstance be-

4. Statement of chemical manufacturing from *The History of Cohoes, New York* (Albany, 1877), p. 265. Other biographical data from Charles B. Stuart, *Lives and Works of Civil and Military Engineers of America* (New York, 1871), pp. 74–90.

5. The Canal Society of New York has searched for these drawings, but they are not known to be in existence now. A canal boat model brought by White from England is owned by the Buffalo Historical Society; the first boat built for the Erie Canal is said to have followed this model.

6. White received specimens of stone and advice from John J. Hawkins, according to a letter dated 31 October 1825, written by Hawkins from London, to W. Strickland, and published in *The Franklin Journal and American Mechanics' Magazine* I (1826), 197–200.

7. *Centennial Celebration*, p. 54.

8. Testimony of Benjamin Wright, in *Canal Laws*, II, 215 ff.

9. *Canal Laws*, I, 406–411.

10. Name (Thomas) from Mrs. L. M. Hammond, *History of Madison County, State of New York* (Syracuse, 1872), pp. 669 ff.

came common talk among all classes, in any way engaged in canal matters, and finally became known to the engineers, of whom Canvass White was one, and Judge Wright another, who took an interest in the affair. The article was examined, and the ledge from whence it was taken.[11] Dr. Barto [Andrew Bartow], a scientific gentleman from Herkimer County, was called upon to make experiments, to prove what this new substance should be. He came on, took some of the rough stone, and in the trip hammer shop of John B. Yates, at Chittenango, burned a parcel, pulverized it into mortar, and in Elisha Carey's barroom, in the presence of Messrs. Wright, White and several others, mixed it with sand, rolled a ball of it, and placed it in a bucket of water for the night. In the morning it had set, was solid enough to roll across the floor, and by Dr. Barto pronounced cement, not inferior to the Roman of Puteoli, or the Dutch Tarras of the Rhine.

White apparently continued experimenting and searching: 'Mr. White devoted considerable time and money in making experiments, and in introducing this cement.'[12] According to John B. Jervis, another canal engineer: 'I well recollect his diligent examination of the stone quarries, and his experiments during his search for suitable material.'[13] In 1820 Canvass White obtained a patent from the United States Government for his cement; this product had been used on all Erie Canal masonry structures, beginning in 1819, and its use continued after the patent was secured. On 18 February 1820, the Canal Commissioners reported:

> The water proof lime, which has been used, during the past season, for most of the mason work done on the canal . . . . Mixed with clean silicious sand and water, and well beaten, it constitutes a mortar, which will soon set, and thoroughly cement any work of stone or brick, in which it is used under water . . . . We failed repeatedly in burning, pulverising and mixing it; but many trials have now shown us the way to succeed in all these operations. And all the masons in our employ, though for some time they were loth to use it, from an opinion which they uniformly entertained of its being of no value, now regard it as a discovery of the greatest importance. It sets much quicker, and becomes stronger in the air, than common lime mortar; and under water, where a common mortar will not set at all, it begins to set immediately, and in a few weeks acquires great hardness and tenacity. It may be quarried with the same labor as common lime stone, and is known to occur in the greatest abundance, in Madison, Onondaga, Ontario and Genesee counties; its color is a yellowish grey, before it is burnt, and burning inclines it to a buff. It is softer than common limestone, and when burnt, about ten per cent. lighter. It will not slack, but must be pulverised by pounding or grinding, and when reduced to powder, its bulk is not materially increased. The quantity of sand mixed with it should be about half that of the lime in bulk. From its not swelling, by being pulverised —from the expense of grinding it, and from the greatly diminished quantity of sand it will bear, it will be at once perceived, that its use will always be attended with greater expense than that of common lime. Still it may be used, at a very small proportion of the cost of any other material now known to answer the same purpose.

Some 500,000 bushels of this cement were used during the construction of the original Erie Canal.[14] Canvass White's patent entitled him to receive four cents per bushel on the manufacture of 'water-proof cement' but it was not paid to him by suppliers for the Erie Canal, either because they believed that his right would not be sustained by the courts, or because they thought he would reach an agreement with the State of New York for direct compensation. The latter course was followed, but not until White had sued one Timothy Brown of Sullivan in the District Court of the United States for infringement, and obtained a judgment for $1,700. Brown and other contractors then petitioned the State Legislature for relief, and White agreed to sell his patent rights to the State of New York for $10,000, although twice as much was due him, and he could have collected triple indemnity if he had wished to sue all of the infringers. Henceforth anyone was allowed to manufacture waterproof cement free in New York.[15]

Natural cement rock occurs in New York State along with other limestones in a band about one to ten miles wide, whose approximate course may be traced on a map by drawing a line through Buffalo, Batavia, Geneva, Auburn, Marcellus, Oneida, Oriskany Falls, Richfield Springs, Schoharie, Catskill, Kingston, Ellenville, and Port Jervis.[16] It varies considerably in composition, thickness, and accessibility; for this reason some deposits have been quarried much more than others.[17] The manufacture of natural cement consisted essentially of three operations: quarrying, burning, and grinding. Fortunately, facilities for all three were available in the vicinity where natural cement rock was discovered. Chittenango Creek in the town of Sullivan afforded water power for a number of mills; among them was a plaster mill built in 1818 by John B. Yates, for grinding gypsum, which was abundant nearby.[18] Here he engaged in the manufacture of 'water lime' soon after its discovery. The firm of George K. Fuller and Joseph Clary also manufactured water lime in the village of Chittenango.[19] Canvass White established works at Chit-

11. Said to have been on the farm of T. Clarke, Esq., in the town of Sullivan. *Trans. of N.Y. State Agric. Soc.* XI (1851), 695 ff.

12. Joshua V. H. Clark, *Onondaga: or Reminiscences of Earlier and Later Times* (Syracuse, 1849), I, 65–66.

13. Noble E. Whitford, *History of the Canal System of New York* (Albany, 1906), I, 97.

14. Annual comptroller's reports (*Canal Laws*, II) list materials furnished, but do not always discriminate between common lime and natural cement, so an exact total cannot be made from them. Names of persons who furnished lime and cement, whether as manufacturers, dealers, or brokers, from the reports of 1821–1825, follow: 'Bond & Harris, Asa Broadwell, Colby & Phelps, H. & I. Dodge, Wm. Farrand, Gorham & Mears, Zadock Hubbard, Richard King, John Lard, Hanford Olds, Clark Puffer, Ezra Smith, Oliver Teall & Bangs, Teall & Sears, Ebenezer Warner, Wheedon, Mills & Hughes, Abel Withey, Hezekiah Beecher, Henry Brown, Farwell & Shoemaker, Morris & Warner, Sage & Gridley, Brown & Morris, S. Farwell, J. Norris, Dox & Hickox, C. White.'

15. *Assembly Journal* (Albany, 1825).

16. Ries and Eckel, *Lime and Cement Industries of New York* (Albany, 1901), pl. 103.

17. Ries and Eckel, *Lime*, pp. 800–836, et passim.

18. Spafford, *Gazetteer of the State of New York* (Albany, 1824).

19. John E. Smith (ed.), *Our County and its People, a Descriptive and Biographical Record of Madison County, New York* (Boston, 1899), pp. 317–318.

tenango, placing his younger brother, Hugh, in charge. According to one account this was begun in 1825, and the product was called White's Water-Proof Cement.[20] Joshua Clark gives what I think is an account of the first manufacture:

> The article was first burned for market in the Town of Sullivan, Madison County, one mile and a half west of Chittenango, in the fall and winter of 1818–19, on large log-heaps. John B. Yates fitted up a mill for grinding it. Mr. White had the exclusive right of manufacturing and vending the article. The price ordinarily charged, was from three dollars fifty cents to five dollars per barrel of five bushels. The barrels were lined with oiled paper and were made perfectly water tight.[21]

It remains to mention the later part of Canvass White's career. While working on the Erie he became famous as a canal engineer; after that he worked on the Union Canal in Pennsylvania, the water supply system of New York City, the Schuylkill Navigation Company, the Delaware and Chesapeake Canal, the Windsor locks and the Farmington Canal in Connecticut, the Lehigh Canal, and the Delaware and Raritan Canal. In the autumn of 1834 he went to St. Augustine, Florida, in the hope of improving his health; he died 18 December, a month after his arrival, and was buried at Princeton, New Jersey.[22]

In my opinion Canvass White deserves a great deal of credit for his discovery of natural cement rock in central New York. One cannot exclude the element of chance, but I am impressed by the knowledge and persistence which he and other canal engineers contributed to the search. They knew what they were seeking and how to recognize it. A contemporary book expresses very well the optimism they must have shared:

> That all the materials for making the different kinds of water-cements, except puzzolana, and perhaps except cellular basalt, exist in great abundance, in the United States, there cannot be a doubt . . . but the mineralogy of the United States is yet so imperfectly known . . . we have, however, it is believed, all the kinds of lime-stone; and the State of New York can furnish the several varieties . . . .[23]

Only the briefest explanation can be given in these pages of the relation between White's cement and other materials of historic interest.[24] *Common lime*, made by burning relatively pure limestone in a kiln, has been used in mortar from ancient times. *Hydraulic lime* results when the stone contains as little as 18% to 25% of clay; it will harden under water. White's *natural cement* was made by burning limestone containing more clay—about 30%—in a kiln and grinding the resulting clinker. *Pozzolana* used by the ancient Romans contained only a small percentage of lime; therefore, after the material found in nature was pulverized, lime was added. *Portland cement* was made in England by Aspdin in 1824 from an artificial mixture of ground limestone and clay, which he burned in a kiln and ground into powder; he named it after Portland stone because of the resemblance. In the modern sense of the term, portland cement is that made by improved methods after about 1850. References to use of portland cement in the United States before 1865 should be received with the utmost skepticism.

The term 'cement' in the sense of mortar or the solidified material made with lime and broken stones goes back at least to the fourteenth century in England. The term 'concrete' appears to have been applied to the final product in England by about 1815. Modern concrete contains aggregate—gravel or crushed stone—as an essential ingredient; I am as yet unable to trace its use.

20. Daniel E. Wager (ed.), *Our County and its People, a Descriptive Work on Oneida County, New York* (Boston, 1896), pp. 81–82.

21. Clark, *Onondaga*, II, 66.

22. Stuart, *Lives and Works*, pp. 74–90.

23. *Treatise on Internal Navigation* (Ballston Spa, N. Y.: U. F. Doubleday, 1817), p. 130. This reference was furnished by the Onondaga Historical Association, to whom I am also indebted for the extensive use of the Association's library.

24. Readers desiring a fuller and more technical account are invited to write to the author c/o School of Architecture, Syracuse University.

LETTERS TO THE EDITOR

ARCHIVES OF THE SUPERVISING ARCHITECT TREASURY DEPARTMENT

Sir:

The Office of the Supervising Architect had its beginning in the Construction Branch established 1853 in the Treasury Department to cope with the growing magnitude of its building activities. Possibly the fact that the collection of customs was a function of the Treasury Department with the accompanying necessity of housing for its field activities, plus the fact that disbursement of public money was concerned, accounts for the allocation of architectural and building activities to that department. Whatever the reason, during the earlier years, the Secretary of the Treasury arranged in many instances for the construction of buildings under the supervision of local commissions. Local architects and supervisors of construction were often employed and paid out of funds appropriated for the construction of designated buildings. But prior to 1853, it appears that no uniform method was observed in the construction of the public buildings of the Department.

By 1853 the Federal Government owned twenty-three customhouses and eighteen marine hospitals, and had fifteen customhouses in the process of being constructed. The growing number of buildings and the lack of a uniform policy necessitated remedial action of some sort. In response to this manifest need James B. Guthrie, Secretary of the Treasury, created in the spring of 1853 the Construction Branch and gave it the duties of the selection and purchase of sites, making of plans and estimates for buildings, general superintendency of their construction, and the preservation of related records. Apparently the Secretary's conception of the desirable type of official to take charge of the proposed organization led him to think of an engineer rather than an architect. At any rate, he requested and received the detailing of Captain Alexander H. Bowman, Corps of Engineers, to serve as the first Engineer-in-Charge of the Branch.

Fortunately, Captain Bowman retained in the new organization an able architect, Ammi B. Young, with the title of Supervising Architect. In the fall of 1860, S. M. Clark assumed the duties of Acting Engineer-in-Charge, and from 28 July 1862 until 30 September 1865 Isaiah Rogers held the position. Rogers was succeeded by A. B. Mullet, really the first incumbent of the Office of Supervising Architect, with the title of Supervising Architect. At an undetermined date, the Branch became known as the Office of the Supervising Architect.

With the passing of time and expansion of government building activities, the size of the Supervising Architect's office increased, as did also the number of buildings and magnitude of operations handled by it. Persons interested in a more detailed discussion of the history, organization, and functions of the Office of the Supervising Architect through its evolution into the Public Building Service will find the following publications helpful: R. H. Thayer, *History, Organization, and Functions of the Office of the Supervising Architect of the Treasury Department* (Washington, 1886), Treasury Document No. 817; Darrel H. Smith, *The Office of the Supervising Architect of the Treasury*; and *The Public Buildings Administration and Its Work as of June 30, 1948* (Washington, n.d.).

Practically none of the office files of the Supervising Architect have been destroyed, and except for a few miscellaneous records, they have been transferred by the Public Buildings Service to the National Archives. These records of the Public Buildings Service totaling over 7,000 cubic feet, most of which were created by the Office of the Supervising Architect, are presently in the custody of the Agriculture and General Services Branch of the National Archives, where they are available for examination by interested persons.[1]

For architectural historians, historians of buildings, biographers, and local historians, these records dating mainly from 1853 to 1939 contain a wealth of research materials. Not only is there an abundance of textual records, but there are also 156 linear feet of original architectural drawings, tracings, prints, plans, cabinet sketches, and specifications of buildings that have been sold, traded, or demolished (1840–1943). These building plans, which are of both interiors and exteriors, were used in the original construction and often show later additions and repairs; some also bear significant notes. Unfortunately, only about half of the original file of the architect's general sketches and drawings (Cabinet Sketches) are in the National Archives; the whereabouts of the remainder is unknown. These Cabinet Sketches consist principally of front elevation and simple floor plan sketches, often in color. Of special interest are the construction drawings of Federal Government Buildings at Expositions (1891–1940), which consist of the drawings of sites and buildings, including sketches, tracings, and blueprints.

In addition, the Still Pictures Branch of the National Archives has custody of over 55,000 negatives, photographs, prints, and lantern slides of post offices, customhouses, courthouses, marine hospitals, and other buildings. At present architectural drawings and plans of buildings still owned by the Federal Government and under the custody of the Public Buildings Service are filed in its current files. Information about them can be had by contacting the Public Building Service, General Services Administration, Washington 25, D. C.

Probably the most voluminous and fruitful file of records for research is the Letters Received File, dated 1843 to 1910, containing the letters received by the Office of the Supervising Architect. This file, totaling 4,250 linear feet, consists of letters from Government officials and private individuals, addressed chiefly to the Supervising Architect, and relating to the acquisition of building sites and the construction, alteration, maintenance, and repair of public buildings. Since these original letters often contain extraneous personal matter, much information of significance can be found by interested

1. The following information about these records is based on *Preliminary Inventory No. 110, Records of the Public Buildings Service* (Washington, 1958), compiled by W. Lane Van Neste and Virgil E. Baugh, and the knowledge gained by the author as the archivist servicing these records. Copies of *Preliminary Inventory No. 110* are freely available from the National Archives to anyone wishing more detailed information.

searchers.[2] This file is arranged alphabetically by name of building. In addition, there are forty-six volumes of registers which serve as a finding aid for these letters, and contain typically the following information: date of letter, date of receipt of letter, name of sender, and brief of subject.

The main Letters Sent file consists of some 1,500 press-copy books, dated mainly 1855–1911, in which were reproduced copies of the letters sent by the Office of the Supervising Architect. Included are some letters signed by the Secretary and Assistant Secretary of the Treasury, and, in the early years, by the Engineer-in-Charge; but these letters concern for the most part matters that eventually were made the responsibility of the Supervising Architect. The letters are addressed to members of Congress, collectors of customs, custodians and inspectors of public buildings, etc., and concern details of choosing and acquiring building sites, and construction, maintenance, and repair of the buildings. Arranged chronologically, to about 1899, most bound volumes are indexed alphabetically by name of addressee or location of building or both. In addition there are forty-seven volumes of registers which serve as a finding aid for these letters, and contain typically the following information: date, volume, and the page number of press-copy books where it may be found, name of addressee, initials of writer, and brief of subject matter. There is also another Letters Sent file of 3,249 volumes of carbon copies duplicating the letters described above for the years 1888–1912 and arranged alphabetically by place and subject and thereunder chronologically.

Besides the Letters Sent file described above, there are other files of press copies of letters sent by the Office of the Supervising Architect concerning chiefly the construction of different buildings. The following are but a few of perhaps special interest: The Treasury Extension, May 1855–February 1863, 2 volumes; Customhouses and Other Buildings, March 1851–February 1863, 13 volumes; Post Office at Washington, D. C., August 1891–June 1899, 15 volumes; and the New State Department Building, May 1871–January 1872, 1 volume. All of the volumes are arranged chronologically and most are indexed by name of addressee. In addition, there are various miscellaneous operating and fiscal records, including ledgers, account books, and registers.

After 1910, the letters received and copies of the letters sent were filed together in the General Correspondence and Related Records File, which totals 6,452 linear feet for the period 1910–1939. It consists of correspondence between the Office of the Supervising Architect and agencies of the executive and legislative branches of the Federal Government, postmasters, collectors of customs, construction superintendents, engineers, custodians, building inspectors, private firms, architects, and other private individuals. The correspondence relates chiefly to the acquisition of building sites, construction, art work in the buildings, alteration, maintenance, and repair of the buildings. This file is arranged alphabetically by state, thereunder alphabetically by city, thereunder alphabetically by building, and thereunder chronologically.

Anyone interested in the records relating to art in these records or elsewhere in the record collections in the National Archives, actually one of the major bodies of source material on the history of art in the United States, should see the report by Wayne C. Grover, Archivist of the United States, in *Art and Government: Report to the President by the Commission of Fine Arts* (Washington, D. C., 1953), pp. 46–50. Architectural historians interested in the older public buildings in the District of Columbia will find long accumulated records dating from 1791 to 1925 in Record Group 42, Records of the Office of Public Buildings and Public Parks of the National Capital, which are in the custody of the Interior Branch of the National Archives.

The foregoing discussion of the records of the Supervising Architect is not intended as a definitive one of Record Group 121, Records of the Public Buildings Service. Instead, it is hoped that this letter will bring a group of valuable research records to the attention of interested people and will encourage architectural historians, as well as others, to utilize effectively the research possibilities residing in them.

Truman R. Strobridge
National Archives
Washington, D. C.

2. The writer can recall one instance during the last year when an architectural historian, by personally searching this file, was able to substantiate his belief that a certain building was designed by a different architect than the one that was commonly believed to have designed it.

BOOKS

John Fitchen, *The Construction of Gothic Cathedrals, A Study of Medieval Vault Erection* (New York: Clarendon Press, 1961), 344 pp., 73 figs. $10.10.

It is more than thirty years since a full-length study of mediaeval vaulting has appeared in English. During this period the controversies over the origin of the rib vault and the function of the ribs, the structural role of the pointed arch, and the behavior of the flying buttress have been actively pursued by scholars both here and abroad. *The Construction of Gothic Cathedrals* seeks to give a new dimension to this discussion of the vaulting problem by studying a largely neglected aspect of mediaeval engineering, the actual process of construction. Mr. Fitchen has examined in far greater detail than any previous writer such matters as the erection of formwork, provision of bracing, and hoisting of materials. In addition, he has reviewed the early development of mediaeval vaulting in the light of recent scholarly opinion, with a view toward determining the influence of construction problems upon the evolution of the vault.

To a considerable extent, the description of the development of mediaeval vaulting which occupies a preliminary chapter may be regarded as supplanting the older standard accounts in English. The material is presented with the aid of a series of line drawings which clearly reveal to the reader the geometrical properties of the several types of early vaults, up to the rectangular rib vault of the High Gothic, as well as the essential details of construction of both groin and rib vaults. The author is wholly free of the bias toward a structural explanation of all aspects of Gothic construction which the writings of Viollet-le-Duc imposed upon several later generations of writers, and many of the old misconceptions about Gothic vaulting which still enjoy general currency find effective refutation in his discussion. Among the old structural explanations which are dealt with is the claim that the pointed arch played an essential role in reducing the thrust in Gothic vaulting, as well as the familiar argument that the pointed arch was developed in order to permit the vaulting of rectangular nave bays, being needed, it was said, to bring the tops of the boundary arches of the bay level with the keystone of the much longer diagonals.

Mr. Fitchen is also among those who have accepted Pol Abraham's argument that the transverse vault ribs have little structural significance. But in an effort to replace the seriously discredited structural explanation of the rib vault by a constructional one, he has advanced the further claim that the diagonal rib also plays a minor role in the support of the vault. The diagonal rib is thus held to be chiefly a device for simplifying the assembly of the vault. This view of the role of the diagonal rib is based upon an assertion that there is little or no arch action in the completed vault, its behavior being, instead, similar to that of the shell structures recently become fashionable among contemporary architects, which are constructed of very thin webs of reinforced concrete. So radical a position needs to be supported by careful calculations and a diagrammatic presentation of the forces acting within a mediaeval vault structure. In the absence of such a presentation, this reviewer can only express the opinion that while the form of the groined vault certainly permits the development of forces of resistance other than voussoir action, these forces are not analogous to those present in a reinforced concrete shell structure, nor do they relieve the diagonal rib of a principal share in the support of the vault. After more than half a century of debate over the fundamentals of Gothic statics it should be clear that the argument over vault action will only be finally resolved when exact methods have been brought to bear upon the analysis of vault behavior.

The account of the construction procedures employed in the great cathedrals which forms the main subject of Mr. Fitchen's book, is an attempt at a hypothetical reconstruction of the methods by which mediaeval builders raised the walls of the churches and then vaulted them in stone at extreme heights. This approach to the subject was necessary because a painstaking examination of mediaeval documentation of building operations and manuscript illuminations illustrating buildings under construction yielded the author little useful information. Principal attention is paid to the details of the formwork and centering upon which the high vaults of the cathedrals were laid. A complete system of formwork, capable of underpinning the vault cells and ribs during construction, of being hoisted into place by lifting devices placed in the roof timbers, and of being disassembled and moved to another bay is worked out in the light of existing knowledge of mediaeval carpentry practices. It is not supposed, of course, that this reconstruction can be an exact one, since direct evidence is almost nonexistent, but by developing a complete and consistent account of a practical system of vaulting formwork, Mr. Fitchen has put students of mediaeval construction in a position to understand more fully the processes of vault construction at high levels.

The character of the scaffold which held the formwork of the high vaults in place far above the nave floor is, however, explored much less thoroughly. Mr. Fitchen has rejected the notion that the staging was built up directly from the nave floor, and proposes instead gantry frames seated upon the ledge of the triforium. These frames appear to be much more reasonable than a vast mass of staging carried up ninety or a hundred feet from the nave floor. But as presented they appear difficult of erection and still more difficult of disassembly once the hoisting platform provided by the roof timbers was blocked off by the completed vault. The use of gantry scaffolding would go far toward explaining the economic feasibility and often rapid erection of the great cathedrals, and it is to be hoped that at a future date we will have a fuller argument in favor of its use by mediaeval builders.

Although Viollet-le-Duc's claims regarding the use of the cerce are effectively refuted in the chapter on formwork, *The Construction of Gothic Cathedrals* closes with a description of another method for filling the cells of the vaults without the use of formwork. Mr. Fitchen believes this method was actually employed in building the great cathedrals, instead of the type of formwork he describes earlier in the book. The system involves the use of a set of ropes weighted with stones which are arranged so as to provide a force capable of supporting the partially completed arches of the cells until they close at the crown. This method does appear practicable for either very small or very steeply pointed vaults. But in the case of the high vaults of the cathedrals, immensely heavy stones would have been required to weight the ropes adequately. These stones could not have been manipulated by the masons in the manner which the method of building requires, and in any case their weight would have crushed the green mortar beds of the partially completed cells and collapsed the work.

Appended to the text is an extremely comprehensive bibliography of vaulting literature. There is in addition an extensive series of technical appendices in which the author has attempted to assemble all the available information on such matters as vault thicknesses and mortar setting times. This information is unfortunately extremely fragmentary, and it is evident that despite the great mass of literature on mediaeval vaulting we still lack much elementary information about mediaeval construction. By posing the vaulting problem afresh and in a new context, *The Construction of Gothic Cathedrals* will perhaps stimulate the factual investigations which must be made before a complete account of the engineering of the mediaeval cathedrals can be written.

JONATHAN LANE
Bryn Mawr, Pennsylvania

Peter Blake, *The Master Builders, Le Corbusier, Mies van der Rohe, Frank Lloyd Wright* (New York: Alfred A. Knopf, 1960), xxi + 329 pp., 131 illus. $6.50.

This book consists of four well-written essays: Le Corbusier and the mastery of form, Mies van der Rohe and the mastery of structure, and Frank Lloyd Wright and the mastery of space. The fourth chapter, Prospect, is both a summary and prognostication.

Blake offers the thesis 'that virtually no modern building constructed today would look the way it does if it had not been for the work of one or more of these three men'. To choose these particular architects, he asked himself how strongly the architect 'has influenced his contemporaries, how visible an imprint he has left upon his time'.

Given these objectives and standards one is puzzled by the omission of Walter Gropius (and his collaborators) as a fourth 'master builder'. Acknowledging the fact that this kind of selection invariably induces protests of omission, I cannot see how the visual character of contemporary architecture can be discussed without including the work of Gropius. And indeed the author was forced to do just that in his chapter on Le Corbusier where he described the design and construction of the Faguswerk of 1911 and the Werkbund Administration Building of 1914 as events of 'tremendous importance'. The Bauhaus he described as 'one of the most extraordinary complexes of buildings to be erected anywhere in the 1920's'. Why not a chapter, then, on Gropius?

Blake's presentation of his subject is lucid and intelligent. The over-all picture of contemporary architecture is created by the author's skillful interweaving of the three architects, the parallels, contrasts, and common denominators of their ideas and works. His analyses and descriptions generally hit the main points precisely, for example: 'The important thing about Le Corbusier's conception of Machine Art was that the emphasis was on the word Art . . . . Corbu's chairs are rather like expensive tarts: elegant, funny, sexy, and not particularly sensible.'

The general picture is weakened, however, by what seems like a lack of historical depth in the author's point of view. His suggestion, for example, that nobody in the nineteenth century, with the possi-

ble exception of Greenough, had insight into the machine analogy rings a sour note historically. And surely some mention must be made of the Dutch contribution to our contemporary architectural vision.

One can question not only the author's historical perspective but also some of his observations, such as the pat generalization that 'The dominant line of Classicism (and neoclassicism) is the vertical, the image of man standing up against nature.'

The reader is at times uncertain about Blake's position on the factor of tradition in contemporary architecture. Although his major theme seems to be that we now have a contemporary tradition, forged in the early decades of our century by the 'master builders', he tends to equivocate about some of the meanings of this thesis in statements to the effect that the younger generation of modern architects 'are unable to this day to escape the powerful impact of this [Barcelona Pavilion] jewellike structure'. Why talk about 'escaping' such a seminal work when the essence of tradition involves the intelligent acknowledgment of such powerful artistic creations as the Barcelona Pavilion?

Blake's conclusions and prophecies are convincing. He warns that 'One of the real problems is the constant demand for novelty, particularly in the U. S. Architects who do not come up with a new form every six months or so are considered "dead on their feet".' He argues that 'To create a coherent civilization—and this is its purpose—architecture must again become a force for order.'

Three propositions are offered for the present and future of architecture: 'first, that the fundamental principles of the new architecture were settled by its great lawgivers; second, that the time for individual heroes is past; and, third, that the hero of the future must be the city itself.' These are tenable assumptions.

Unfortunately, the high quality of the lively text is weakened by listless photos and an indifferent layout.

The publisher makes the familiar claim in the book jacket that this book is for both the specialist and the layman. This is not so. *The Master Builders* is solely an introduction for the uninitiated to some of the basic issues of our contemporary physical environment; and, as such, it is successful. This is no small accomplishment.

THEODORE M. BROWN
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A. Trevor Hodge, *The Woodwork of Greek Roofs* (Cambridge: Cambridge University Press, 1960), 150 pp., 16 pls., 23 figs. $9.50.

As the sparse bibliography in this work attests, the subject of architectural woodwork in Greek buildings has been ignored, cursorily treated, or hopelessly abandoned. In his prefatory remarks, Hodge notes that 'no part of the Greek temple has been less studied than the roofing woodwork'. This succinct statement aptly encompasses the problem in its entirety and the deceptively slim volume which it introduces has done the same. Through a careful study of the building remains *in situ* and in publication, the author has been able to enter upon a discussion of architectural woodwork at the roof and ceiling level accompanied for the first time by an impressive and surprisingly sizable array of demonstrable fact.

The nature of the problem quite necessarily forces Hodge into numerous rather arbitrary decisions. It is to his great credit that he is the first to note the arbitrary nature of such decisions and to apologize for them. Indeed, he is so conscientious in this effort, that one receives the somewhat bizarre impression that he writes and reviews his material in the same breath. In a field fraught with the *ex cathedra* presentation, such candor is delightfully engaging. The book itself, although clearly aimed at specialists in classical architecture, is so clearly written and illustrated that those whose chief interest lies elsewhere will nonetheless quickly grasp the line of presentation.

Because the subject has been so little touched upon in archaeological publication, the author wisely decides to begin his work with a definition of terms. This is doubly welcome since the architectural members of the roof and ceiling are, for the most part, outside of the recognized Vitruvian vocabulary.

Part I of this work is taken up with roof and ceiling reconstruction of four buildings whose preservation of the integral members will permit it. These include the temple of Poseidon at Paestum, the Theseion (Hephaisteion) at Athens, the Megaron of Demeter at Gaggera, and the temple of Concord at Agrigento. The architectural members upon which Hodge depends most heavily for evidence are the tympanum slabs, raking cornice blocks, and blocks from the 'interior pediments' over the cella cross-walls, all of which bear cuttings for the purlins and ridge beam. Also of significance are the side cornice blocks which bear cuttings to receive the rafters and are important for determining tile height.

The effect of the purlins was to break up the temple into a number of longitudinal sections, thus cutting down the span to be covered by rafters from ridge beam to side cornice. The normal way to arrange such a system was to place a purlin on either side of the ridge beam and roughly in line with the cella wall upon which it could be propped at any chosen height. Such was true of the Theseion at Athens although larger temples, such as the temple of Poseidon or the Parthenon could have more than two purlins—these last having four and six respectively.

In addition to this more common system, Hodge mentions a heretofore unexamined roof type which he terms a 'Gaggera roof' from its use in the Demeter megaron. In this building, a large number (ten) of relatively small purlins are socketed into the pediments on either side of the ridge beam and tilted so that their upper surfaces run parallel to the slope of the roof. At Gaggera the purlins are so close and so regularly spaced that the tiles were placed directly upon them with no intervening rafters. Most surprising is Hodge's assertion that the purlins over the cella were supported by a truss arrangement rather than by props, thus giving the truss roof an heretically early date. The date notwithstanding, Hodge is quite convincing on this point.

The temple of Concord apparently used both roofing systems, using the Gaggera roof for the shorter spans at either end, and the ridge-beam-two-purlin arrangement for the larger cella span. In the 'interior pediments' over the east cella wall and opisthodomos columns are the well-known arched openings cut with a decorative raised border outlining each. These openings were apparently used for passage from one part of the attic to another. Hodge takes the decorative border to indicate a cult function for the attic for which the Gaggera roof provides a suitable ceiling. His explanation of the irregular spacing of the purlins and the more simple cella roof is dubious indeed, however. Also I find it difficult to share Hodge's enthusiasm (p. 30, n. 4) for this temple's having the only 'concrete evidence for a sloped ceiling'. He evidently intends a ceiling to be the underside of any surface which covers a usable area. Thus any temple with a functional attic (and there were many) must have a 'sloped ceiling'.

Part II of the book concerns itself with the general features of the integral parts of the roof ceiling complex. Hodge admits that he has no way of reconstructing the wooden coffer ceiling so well attested by building inscriptions. His own discovery, the 'slot ceiling' fills the gap nicely, however, and is perhaps the most convincing of his restorations.

His further discussion of the truss versus the prop roof is most intriguing and his conclusion that the Sicilians knew the truss as early as 550 B.C. seems accurate. However, the suggestion by elimination

that they learned the trick from the Carthaginians must remain a suggestion. In his musings over the fact that the mainland Greeks did not pick up the truss from the Sicilians, Hodge might have noted that they also failed to appreciate double contraction, a common and most effective device in Magna Graecia for dealing with the Doric frieze problem.

Continuing his discussion of the attic, Hodge reiterates that it must have been used for something other than simple maintenance —either for cult, storage, or both. I am not prepared to accept the theory of cult from the thin evidence of the Concord temple alone. Surely too, if the attic were used for storage, as seems more likely, it would be for less precious items than Hodge suggests. Otherwise, we would be likely to hear from Pausanias on the matter. I think also that stone stairways to the attic are missing by and large from Mainland temples not because the attic was less important but because they interfered with the proportions and/or ambulatory system of a cella with an interior colonnade.

Examining the primary timbers of a temple, Hodge concludes that a surprising number of major buildings (e.g., Zeus at Olympia and Aphaia at Aegina) used his Gaggera roof to some extent and that, generally speaking, this system was in vogue until about 460 B.C. when it was replaced by the ridge-beam-two-purlin arrangement.

A study of the secondary timbers reveals that virtually any combination of rafters, battens, sheathing, and clay could be used between tiles and purlins and that indeed the usually restored Arsenal of Philo or Athenian wall-gallery system was by no means standard practice. To Hodge's Athenian wall references, one might add F. Winter's article in *Phoenix* (Winter, 1959), pp. 161 ff.

The following chapter on the development of the cornice block, while not strictly confined to the rafter cuttings, is the first systematic examination I have seen on these all-important members and should serve as a guide book for further architectural examination.

A section on technique deals with the details of beam socket dimensions, beam sizes, mortising, and joints. The omission of appropriate references to Orlandos' *Ta Hylika Domes ton Archaion Hellenon*, heretofore merely disturbing, is inexcusable at this point. Such an excellent volume, rich in references and profusely illustrated, deserved far more than merely a bibliographical notation.

Appendices on the slot ceiling, Theseion architect, and inscriptional terms follow. I cannot understand why, in a long discussion of the coffer grids and lids at Rhamnous, Hodge never saw fit to question the use of the two-piece coffer. Such a device occurs on the Theseion at Athens and nowhere else to my knowledge. Surely a comparison was called for. Such a comparison, it might be added, might have solved the problem of the different coffer varieties which, in light of rebuilding at both temples, deserved more suspicion than it received.

The foregoing summary does not touch upon the numerous side discussions which spice this work and are most edifying—the infamous 'Chinese roof' effect, the hypaethral question, Etruscan influence on the temples of Magna Graecia, to mention but a few. The areas where it was necessary to insert a dissenting word are but minor irritants in a work which is one of the most important of the last decade in the field of Greek architecture. The author could have done little more with his subject. It is to be hoped that he will turn his efforts to the woodwork of buildings other than temples and treasuries. In particular, the Greek political meeting places are in need of a treatment as expert and considered as that in this volume.

STEPHEN L. GLASS
University of Kansas

H. Gerson and E. H. ter Kuile, *Art and Architecture in Belgium, 1600 to 1800* (Baltimore: Penguin Books, Inc., 1960), xix+236 pp., 160 illus. $12.50. Pelican History of Art.

The two Dutch art historians who combined their efforts on this newest volume of the Pelican History of Art series have presented us with a text worthy of its distinguished predecessors. Scholars who have found earlier volumes of the series useful for general information as well as original ideas will not be disappointed by this latest contribution. *Art and Architecture in Belgium, 1600 to 1800* is not only a valuable reference book but is also, in many places, highly enjoyable reading. The material covered by the book has, for the most part, never before been presented in a good English text; this in itself adds to the value of the edition.

As is pointed out by the editors, the title is somewhat misleading. The period covered extends beyond the dates indicated, including a part of the sixteenth century as background material for the major portion of the study. The text is divided into three distinct sections: architecture, sculpture, and painting. Dr. ter Kuile has undertaken the study of the first two fields; Dr. Gerson is responsible for the section on painting.

Architectural historians will be disappointed by the relatively small amount of space given to their specialty, especially as so little has been written on the subject in English. Less than one-sixth of the text and only eleven out of 160 plates are devoted to architecture. It is understandable that painting would be given precedence; however, one wishes that the fine quality of the architecture and the complicated descriptions which call for illustrations would have prompted a greater stress on this portion of the book.

The discussion of architecture in the Southern Netherlands (referred to as Belgium for the sake of convenience by the authors, who are fully aware that they are using a geographical term which appeared later than the period covered by their book) begins with monuments dating from the first quarter of the sixteenth century, or from the time when Italian elements first began to appear in the deep-rooted Flemish Gothic style. Ter Kuile gives a clear explanation of the various forces which brought the Italian Mannerist, rather than High Renaissance, style into popularity in Belgium, illustrating its appearance by citing a few of the most distinguished and descriptive monuments dating from the sixteenth century.

In secular architecture, this style continued into the early years of the following century. Only in ecclesiastical architecture can new developments be seen, where the Italian style made a belated appearance in Jesuit churches. A period of gradual evolution from Gothic to Baroque forms in church architecture, a phase normally overlooked by historians, is given careful analysis. This transitional style, dating from the beginning of the seventeenth century, is termed 'Pre-Baroque' by the author. Although the style was influenced by Italian Mannerism, some restrained Baroque characteristics can already be seen, as, for example, in the original version of St. Charles Borromeo at Antwerp.

A more fully developed Baroque style also appeared in the early 1600s, although one sees the continuation of traditional basic forms in church architecture throughout the century, an essentially Gothic style being overlaid with Italianate decorative motifs—Renaissance, Mannerist, and Baroque elements sometimes appearing in the same building. A few exceptional churches of more fully Baroque character are examined; however, as ter Kuile points out, 'One can even ask whether it is really possible to find genuine Baroque architecture in Belgium during the seventeenth century.'

This hybrid style, which is predominantly ecclesiastical throughout the seventeenth century, is discussed in two parts—before and after mid-century—although, as is pointed out, there is no change of style, either in secular or ecclesiastical architecture between the

first and second halves of the century. The text is primarily a detailed description of the most important buildings which were erected during the periods under consideration, attention also being given to characteristics of individual architects and regional styles. Although emphasis is given to the more predominant church architecture, brief discussions of bell towers and secular buildings are also included. Here, as in ecclesiastical works, Baroque elements are primarily decorative in form. These detailed, informative descriptions cry out for illustrative photographs, the lack of which is especially felt where no references to illustrations are given.

In a very brief discussion of the eighteenth century, the author cites characteristic examples from each of the major regional schools, noting that an even greater variety in style now appeared. The emphasis on ecclesiastical architecture gave way to secular building, but the style retained its essentially Baroque character throughout the first half of the eighteenth century. Examples of these styles and of a gradual transition to classicism, which finally led to the triumph of the International Style at the end of the century, serve to give a general idea of the period.

On the whole, the discussion of architecture gives us a sound although cursory and at times somewhat unclear picture of three centuries of building. A summary of the general development would have been useful due to the author's persistent method of discussing individual monuments with few pauses for comparison or contemplation. However, the reader will have little trouble tying individual characteristics into an organized whole. Due recognition is given to the major architects of the period, as well as to several well-known designers deserving to be remembered. Scholars will find the bibliography minuscule, primarily due to the few works which have been published on the subject. One wonders that the size of the bibliography was not expanded by the inclusion of periodical articles as well as basic texts.

Ter Kuile's discussion of sculpture begins about 1600, the author tracing briefly its development during the first half of the seventeenth century as it appears in the works of individual sculptors. Greater emphasis is given to the second half of the century, where examinations of the most important sculptors at work, in particular Artus I Quellin, are especially useful. The very short survey of sculpture is concluded with a summary indication of eighteenth-century trends.

The section on painting is by far the most valuable part of the book, and even historians whose major interest lies outside this area will find it worth their while to continue to the end of the volume. Dr. Gerson, keeping a clear perspective of the vastness of his project, has woven a thread of continuity through his minutely detailed discussion of seventeenth-century painting.

Beginning with diverse trends which appeared at the end of the sixteenth century, the author gives an excellent comprehensive survey of the activity in Belgium before the appearance of Rubens, as well as an invaluable examination of the individual painters at work. These artists are grouped according to their specialties, the discussion of each facet of painting being thoroughly studied.

Rubens is, as one would expect, given the greatest amount of attention. In a concise explanation of the various aspects of the painter's work according to periods, Dr. Gerson displays his solid scholarship with a text which is copiously footnoted, complete references being given for each painting which is stylistically discussed in the body of the work. In addition, the text reads well and enough original observations are included to make one grateful for this further addition to the already large Rubens bibliography. The discussions of the works of Van Dyck and Jordaens, each of these painters deservedly being given special attention, are equally fine.

Perhaps the most valuable contribution of the book is to be found in the chapter on Other Painters of the Seventeenth Century. Here the styles and painters in evidence during the too-often neglected period following the death of Rubens—from the 1640s to the end of the century—are surveyed. The artists are classified according to their specialties and the regions in which they worked, the development of the individual styles of the more important painters being discussed. Included in this chapter is a very able illustration of how this generation of artists was influenced by Van Dyck, not Rubens, in history painting.

The decadence of history painting in the eighteenth century is noted, greatest attention being given to genre painting which had increased in importance throughout the seventeenth century and finally gained precedence over all other aspects of painting during the eighteenth century. Again, as throughout his portion of the book, Dr. Gerson's fine scholarship and literary ability are evident. His bibliography is outstanding.

In regard to the readability of the volume, credit must be given to Olive Renier, who has again given us an excellent translation from Dutch into English. A brief introduction giving an historical background to the period surveyed (although here, as often in the main portion of the text, one feels that the inclusion of a map of the area would have been helpful) further enhances the quality of the book.

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Edward Waugh and Elizabeth Waugh, *The South Builds, New Architecture in the Old South*, preface by Henry Kamphoefner (Chapel Hill: University of North Carolina Press, 1960), 173 pp., illus. $12.50.

In the development of any art it is important that the artist have the advantage of thoughtful criticism, whether it comes from an aristocratic patron or a democratic press. In America, unfortunately, because of stringent libel laws, the practice of contemporary architecture is largely denied this advantage. Both the authors and the publisher of *The South Builds* should be applauded for taking a bold step in the direction of serious architectural criticism, and it is to be hoped that more books which are concerned with an appraisal of modern design will be encouraged to make their appearance.

The authors begin with a brief account of the history of architecture in the South. While this portion of the book is short and to the point, the illustrations of early buildings consist, for the most part, of mediocre examples of southern design. It is understandable that the authors wanted representative examples rather than the great and famous edifices of the South; still, buildings with more architectural distinction would have given this chapter more depth. As it stands, it seems merely an excuse for the study of one region of America. As Henry-Russell Hitchcock and Philip Johnson observed long ago, contemporary architecture is generally international in character. Most of the buildings under discussion in this book would be at home in any moderate climate, if not in most parts of the United States. However, the authors themselves admit that regionalism can only flourish in a handicraft culture, and that modern civilization tends to eliminate it.

The point is made that 'only a short ten years earlier the people sponsoring the resettlement of Wake Forest College in Winston-Salem, with a clean piece of ground to start with, missed a unique opportunity to give the South a magnificent contemporary university campus. Instead, they were responsible for a group of buildings whose exteriors represent the absolute in nostalgic pseudo-neo-Georgian without a modicum of twentieth-century expression except for the asphalted parking lots.' It should be indicated that before Thomas Jefferson died in 1826, he recommended macadam for paving at the University of Virginia. The exact date of construction of the buildings at the University of Virginia is well known: the corner-

stone was laid on 6 October 1817, in the presence of Jefferson, Monroe, and Madison.

It is difficult to see why Texas and Arkansas have been omitted in this study. Both states contain fine examples of contemporary architecture, and both are regarded as southern states, even if Texas does pretend, at times, that it is a separate empire.

The chapter on domestic architecture begins, as all the chapters do, with an introductory essay. This one is particularly pertinent, and together they form a valuable study of modern design that should be read by all clients as well as students. Quite rightly the Waughs point to the three schools of architectural philosophy in modern domestic design: 'The first of these is composed of the adherents of strict modular design suggested by steel column and beam framing and interpreted through industrial component parts or by the use of the four-by-eight plywood module and the four-foot prefabricated window. The other group of formalists has developed the architecture of the dwelling as a warped surface or folded-plate space sculpture in which the occupants become consciously and constantly enfolded within its space definition. The third group, which might be considered the architectural deviant, follows strictly the belief that form must be generated by functional need and that it is therefore impossible to apply a predetermined formalized discipline to any architectural problem. This group is beginning to be known as humanist, although the exponents of the other two philosophies are inclined to call it romantic. . . .'

While it is generally true that the best orientation for rooms is the southern, modern architects forget the importance of other exposures, particularly the northern. On hot days in the South, the northern side of a house is certainly the coolest and the most restful. Outstanding examples of house design are illustrated, yet the book ignores almost entirely the modern house of wood, except for post and lintel construction, where the panels are filled in with another material. Some of the most distinguished modern houses in our country are wooden houses with visible roofs. Indeed, in the Far West, this form has evolved into a school of design which has been named by Lewis Mumford the Bay Region style. With variations, this basic form is as suited to the South by reason of tradition, economy, and aesthetic considerations as to any other region.

Some strikingly handsome modern schools are discussed. But while work of this caliber is being done, it is all the more unfortunate that many of the new schools, while modern in general character, are drab and stereotyped solutions. As the book points out, one of the greatest challenges to the creative architect today is the expression of existing university campuses. With bulging enrollments, land shortages, increasing automobile traffic, and shortages of experienced faculty, the universities will need all the help they can get from brilliant and experienced architects. The growth of higher education must be planned on a regional and state basis in order to use to the full existing resources and to avoid unnecessary duplication of studies and research projects.

In the discussion of the carefully designed Wilson Junior High School by A. G. Odell and Associates in North Carolina, the Waughs restate one of the principles of the Bauhaus: 'The building exhibits the refinement of detail and craftsmanship that can be achieved with well-detailed and carefully prefabricated machined parts. This would seem to be the twentieth century architect's answer to those architects and would-be builders who lament the passing of the guild craftsmen of the Middle Ages.' Except for a few minor criticisms the beautiful Riverview High School in Sarasota, Florida, by Paul Rudolph is greatly admired. Florida is also fortunate in having the largest group of Frank Lloyd Wright buildings at Florida Southern College. The authors feel that his greatest contribution to architecture is his constant insistence on fitting his buildings so harmoniously to their sites and function that they seem one with their environment.

In the chapter on commercial buildings the fact is discussed that the skyscraper, as our chief architectural symbol, has been replaced by the shopping center and the motel, both horizontal forms. This has come about due to the passing of the influence of the railroad, which forced vertical growth, and to the dominance of the automobile, which fosters horizontal develpoment. This reviewer feels that the time may come when this process is reversed: already motels are beginning to grow upward as the Motel de Ville by Charles R. Colbert pictured in this book shows; New York is already nearing the saturation point in automobile traffic. The railroads may have to be revived to prevent the great cities from strangling themselves. As the authors say, architects must be ready and eager to accept the responsibility for over-all city and regional planning. Unless they are, the new American cities will be left to the arbitrary control of the speculator, the highway engineer, layman boards, and the planner who is not an architect. The resulting chaos is only too apparent in our growing towns and cities.

In conclusion the Waughs believe that there are three paths which architecture is now taking. One of these is modern Palladianism (a term associated with the work of Mies van der Rohe), which is illustrated in the Reynolds Metal Building in Richmond, by Skidmore, Owings, and Merrill. Another is the romantic concept of the Bee Ridge Presbyterian Church in Sarasota, Florida, by Victor Lundy. The third is the new classroom for North Carolina State College, designed to meet the problem of exploding college enrollment, shortage of land, and scarcity of professors. It is designed by Holloway, Reeves, Waugh, and Sawyer. The authors believe the greatest dangers to the creative development of modern architecture are the overuse of the prefabricated windowwall, and of the shell. They point with pride to the Tennessee Valley Authority, and call it one of the wonders of the modern world, yet they fail to give credit to any architect or engineer for the design of its great dams and buildings, some of which are illustrated.

The authors believe that the architectural schools should cease to orient all students toward a personal approach to architectural problems, and should rather train the budding virtuoso to become a professional socio-architect, concerned with the interrelated problems of man's total environment. They do not explain how this is to be accomplished, but it should be remembered that in an age of conformity, it is more necessary than ever to nurture and develop the artist as an individual. The book suggests that graciousness within the new architectural forms can only be recaptured by a proper integration of scientific achievements with the needs of the individual. This book is an important contribution to the efforts being made to achieve such a harmony.

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Books Received

(Mention of a book here does not preclude its subsequent review.)

Albert Bush-Brown, *Louis Sullivan* (New York: George Braziller, 1960), 48 pp., 112 illus. $4.95. Masters of World Architecture.

Carl W. Condit, *American Building Art, The Twentieth Century* (New York: Oxford University Press, 1961), 427 pp., 134 illus. $15.00.

James Marston Fitch, *Walter Gropius* (New York: George Braziller, 1960), 47 pp., 138 illus. $4.95. Masters of World Architecture.

Frank Jenkins, *Architect and Patron* (New York: Oxford University Press, 1961), 254 pp., 10 pls. $5.60. University of Durham Publications.

Andreas Grote, *Das Dombauamt in Florenz 1285–1370* (Munich: Prestel Verlag, 1960), 170 pp., DM 15. Studien zur Geschichte der Opera di Santa Reparata.

JOURNAL OF THE SOCIETY OF ARCHITECTURAL HISTORIANS

INDEX VOL. XX, 1961

Alazard, Jean, *Le Corbusier*, review by John M. Jacobus, Jr., 2:92–95

Alexander, Robert L., *William F. Small, 'Architect of the City'*, 2:63–77

Bannister, Turpin C., *Oglethorpe's Sources for the Savannah Plan*, 2:47–62

Blake, Peter, *The Master Builders, Le Corbusier, Mies van der Rohe, Frank Lloyd Wright*, review by Theodore M. Brown, 4:200–201

Boase, T. S. R., *English Art, 1800–1870*, review by Marcus Whiffen, 3:149

Brown, Theodore M., review of Peter Blake, *The Master Builders, Le Corbusier, Mies van der Rohe, Frank Lloyd Wright*, 4:200–201

Carrott, Richard G., *The Architect of the Pennsylvania Fire Insurance Building*, American Notes, 3:138–139

Choay, Françoise, *Le Corbusier*, review by John M. Jacobus, Jr., 2:92–95

Cotter, John L., *Archeological Excavations at Jamestown Colonial National Historical Park and Jamestown National Historic Site, Virginia*, review by G. Hubert Smith, 3:148

Damm, Margaret, review of H. Gerson and E. H. ter Kuile, *Art and Architecture in Belgium, 1600–1800*, 4:202–203

Drexler, Arthur, *Ludwig Mies van der Rohe*, review by William H. Jordy, 1:42–43

Edgerton, Samuel Y., *Heat and Style: Eighteenth-Century House Warming by Stoves*, 1:20–26

Fitchen, John, *The Construction of Gothic Cathedrals*, review by Jonathan Lane, 4:199–200

Frank, Klaus, *The Works of Affonso Eduardo Reidy*, review by John M. Jacobus, Jr., 2:92–95

Fremantle, Katharine, *The Baroque Town Hall of Amsterdam*, review by Julius Held, 1:41–42

Gerson, H. and E. H. ter Kuile, *Art and Architecture in Belgium, 1600–1800*, review by Margaret Damm, 4:202–203

Gilchrist, Agnes Addison, *John Haviland before 1816*, American Notes, 3:136–137

Glass, Stephen L., review of A. Trevor Hodge, *The Woodwork of Greek Roofs*, 4:201–202

Held, Julius, review of Katharine Fremantle, *The Baroque Town Hall of Amsterdam*, 1:41–42

Hibbard, Howard, review of Torgil Magnuson, *Studies in Roman Quattrocento Architecture*, 1:40–41

Hodge, A. Trevor, *The Woodwork of Greek Roofs*, review by Stephen L. Glass, 4:201–202

Jacobus, John M., Jr., review of Le Corbusier, *Creation is a Patient Search*; Jean Alazard, *Le Corbusier*; Françoise Choay, *Le Corbusier*; and Klaus Frank, *The Works of Affonso Eduardo Reidy*, 2:92–95

Jordy, William, review of Arthur Drexler, *Ludwig Mies van der Rohe*, 1:42–43

Keune, Russell V. and James Replogle, *Two Maine Farmhouses*, American Notes, 1:38–39

Kramer, Ellen W. and Aly A. Raafat, *The Ward House: A Pioneer Structure of Reinforced Concrete*, 1:34–37

Kubler, George, review of Earl E. Rosenthal, *The Cathedral of Granada, A Study in the Spanish Renaissance*, 3:146

Lane, Jonathan, review of John Fitchen, *The Construction of Gothic Cathedrals*, 4:199–200

Lane, Jonathan, *The Period House in the Nineteen-Twenties*, 4:169–178

Le Corbusier, *Creation is a Patient Search*, review by John M. Jacobus, Jr., 2:92–95

McCoy, Esther, *Five California Architects*, review by M. D. Ross, 2:95–96

McCoy, Esther (ed.), *Letters from Louis H. Sullivan to R. M. Schindler*, 4:179–184

MacDonald, William L., review of David Talbot Rice, *The Great Palace of the Byzantine Emperors, Second Report*, 1:43–44

McKee, Harley J., *Canvass White and Natural Cement, 1818–1834*, American Notes, 4:194–197

Magnuson, Torgil, *Studies in Roman Quattrocento Architecture*, review by Howard Hibbard, 1:40–41

Markman, Sidney D., *Las Capuchinas: An Eighteenth-Century Convent in Antigua, Guatemala*, 1:27–33

Meeks, Carroll L. V., review of Gio Ponti, *In Praise of Architecture*, 3:147–148

Nichols, Frederick D., review of Edward Waugh and Elizabeth Waugh, *The South Builds, New Architecture in the Old South*, 4:203–204

Park, Helen, *A List of Architectural Books Available in America before the Revolution*, 3:115–130

Ponti, Gio, *In Praise of Architecture*, review by Carroll L. V. Meeks, 3:147–148

Raafat, Aly A. and Ellen W. Kramer, *The Ward House: A Pioneer Structure of Reinforced Concrete*, 1:34–37

Raley, Robert L., *Early Maryland Plasterwork and Stuccowork*, American Notes, 3:131–135

Replogle, James and Russell V. Keune, *Two Maine Farmhouses*, American Notes, 1:38–39

Reps, John W., *Thomas Jefferson's Checkerboard Towns*, 3:108–114

Rice, David Talbot, *The Great Palace of the Byzantine Emperors, Second Report*, review by William L. MacDonald, 1:43–44

Rosenthal, Earl E., *The Cathedral of Granada. A Study in the Spanish Renaissance*, review by George Kubler, 3:146

Ross, M. D., review of Esther McCoy, *Five California Architects*, 2:95–96

Smith, G. Hubert, review of John L. Cotter, *Archeological Excavations at Jamestown Colonial National Historical Park and Jamestown National Historic Site, Virginia*, 3:148

Smith, Webster, *Pratolino*, 4:155–168

Swoboda, Karl M., *The Problem of the Iconography of Late Antique and Early Mediaeval Palaces*, 2:78–89

Torres, Louis, *Samuel Thomson and the Old Custom House*, 4:185–190

Waugh, Edward and Elizabeth Waugh, *The South Builds, New Architecture in the Old South*, review by Frederick D. Nichols, 4:203–204

Weisman, Winston, *Philadelphia Functionalism and Sullivan*, 1:3–19

Weitzman, George H., *The Utilitarians and The Houses of Parliament*, 3:99–107

Whiffen, Marcus, review of T. S. R. Boase, *English Art, 1800–1870*, 3:149

Wrenn, George L., *'A Return to Solid and Classical Principles', Arthur D. Gilman, 1859*, American Notes, 4:191–193

AMERICAN ARCHITECTURE

Alexander, Robert L., *William F. Small, 'Architect of the City'*, 2:63–77

Bannister, Turpin C., *Oglethorpe's Sources for the Savannah Plan*, 2:47–62

Boston Building Ordinances, 1631–1786, American Notes, 2:90–92

Carrott, Richard G., *The Architect of the Pennsylvania Fire Insurance Building*, American Notes, 3:138–139

Edgerton, Samuel Y., *Heat and Style: Eighteenth-Century House Warming by Stoves*, 1:20–26

Gilchrist, Agnes Addison, *John Haviland before 1816*, American Notes, 3:136–137

Keune, Russell V. and James Replogle, *Two Maine Farmhouses*, American Notes, 1:38–39

Kramer, Ellen W. and Aly A. Raafat, *The Ward House: A Pioneer Structure of Reinforced Concrete*, 1:34–37

Lane, Jonathan, *The Period House in the Nineteen-Twenties*, 4:169–178

McCoy, Esther (ed.), *Letters from Louis H. Sullivan to R. M. Schindler*, 4:179–184

McKee, Harley J., *Canvass White and Natural Cement, 1818–1834*, American Notes, 4:194–197

Nichols, Frederick D., review of Edward Waugh and Elizabeth Waugh, *The South Builds, New Architecture in the Old South*, 4:203–204

Park, Helen, *A List of Architectural Books Available in America before the Revolution*, 3:115–130

Peisch, Mark L., Letter to the Editor, concerning *Frank Lloyd Wright* and *George Elmslie*, 3:140–142

Raley, Robert L., *Early Maryland Plasterwork and Stuccowork*, American Notes, 3:131–135

Reps, John W., *Thomas Jefferson's Checkerboard Towns*, 3:108–114

Ross, M. D., review of Esther McCoy, *Five California Architects*, 2:95–96

Smith, G. Hubert, review of John L. Cotter, *Archeological Excavations at Jamestown Colonial National Historical Park and Jamestown National Historic Site, Virginia*, 3:148

Strobridge, Truman R., Letter to the Editor, *Archives of the Supervising Architect, Treasury Department*, 4:198–199

Torres, Louis, *Samuel Thomson and the Old Custom House*, 4:185–190

Weisman, Winston, *Philadelphia Functionalism and Sullivan*, 1:3–19

Wrenn, George L., *'A Return to Solid and Classical Principles', Arthur D. Gilman, 1859*, American Notes, 4:191–193

ANCIENT ARCHITECTURE

Glass, Stephen L., review of A. Trevor Hodge, *The Woodwork of Greek Roofs*, 4:201–202

Swoboda, Karl M., *The Problem of the Iconography of Late Antique and Early Mediaeval Palaces*, 2:78–89

BYZANTINE ARCHITECTURE

MacDonald, William L., review of David Talbot Rice, *The Great Palace of the Byzantine Emperors, Second Report*, 1:43–44

MEDIAEVAL ARCHITECTURE

Branner, Robert, Letter to the Editor, replying to letter of Leonard Cox on Chartres, 3:145–146

Cox, Leonard, Letter to the Editor, concerning article by Robert Branner on Chartres, 3:143–145

Lane, Jonathan, review of John Fitchen, *The Construction of Gothic Cathedrals*, 4:199–200

RENAISSANCE AND BAROQUE ARCHITECTURE

Damm, Margaret, review of H. Gerson and E. H. ter Kuile, *Art and Architecture in Belgium, 1600–1800*, 4:202–203

Held, Julius, review of Katharine Fremantle, *The Baroque Town Hall of Amsterdam*, 1:41–42

Hibbard, Howard, review of Torgil Magnuson, *Studies in Roman Quattrocento Architecture*, 1:40–41

Kubler, George, review of Earl E. Rosenthal, *The Cathedral of Granada, A Study in the Spanish Renaissance*, 3:146

Markham, Sidney D., *Las Capuchinas: An Eighteenth-Century Convent in Antigua, Guatemala*, 1:27–33

Smith, Webster, *Pratolino*, 4:155–168

MODERN ARCHITECTURE
(Nineteenth and Twentieth Centuries—Foreign)

Brown, Theodore M., review of Peter Blake, *The Master Builders, Le Corbusier, Mies van der Rohe, Frank Lloyd Wright*, 4:200–201

Huxtable, Ada Louise, Letter to the Editor, concerning review by Peter Collins of her book *Pier Luigi Nervi*, 3:142–143

Jacobus, John M., Jr., review of Le Corbusier, *Creation is a Patient Search*; Jean Alazard, *Le Corbusier*; Françoise Choay, *Le Corbusier*; and Klaus Frank, *The Works of Affonso Eduardo Reidy*, 2:92–95

Jordy, William, review of Arthur Drexler, *Ludwig Mies van der Rohe*, 1:42–43

Weitzman, George H., *The Utilitarians and The Houses of Parliament*, 3:99–107

Whiffen, Marcus, review of T. S. R. Boase, *English Art, 1800–1870*, 3:149

ARCHITECTURE (General and Miscellaneous)

Meeks, Carroll L. V., review of Gio Ponti, *In Praise of Architecture*, 3:147–148